DOCUMENT RESUME

ED 240 169 TM 840 125

AUTHOR	Buchanan, Anne E.; Romberg, Thomas A.
TITLE	Data Collection Procedures and Descriptive Statistics for the Grade Two (Spring) Achievement Monitoring Tests (A-1 and A-2), Coordinated Study No. 1.
INSTITUTION	Wisconsin Center for Education Research, Madison.
SPONS AGENCY	National Inst. of Education (ED), Washington, DC.
REPORT NO	WCER-WP-320
PUB DATE	Jun 82
GRANT	NIE-G-81-0009
NOTE	430p.; Report from the Program on Student Diversity and Classroom Processes: Skill Development.
PUB TYPE	Reports - Research/Technical (143) -- Statistical Data (110)
EDRS PRICE	MF01/PC18 Plus Postage.
DESCRIPTORS	Achievement Tests; Addition; Concept Formation; *Data Collection; *Grade 2; *Longitudinal Studies; *Mathematics Skills; Primary Education; *Problem Solving; Subtraction; Test Items; Test Manuals; *Test Results; Tests

ABSTRACT

This paper documents the achievement monitoring component of a three-year study on the acquisition of addition-subtraction problem-solving skills by young children. A set of performance objectives contained in or ancillary to ten instructional units on sentence-writing for verbal problems and algorithms specified test content. Tests measuring group progress toward these objectives were administered after each unit. Data for the tests given after the two units covered in the spring semester of grade 2 (n=120) are described. This paper presents (1) background information on the subjects and instructional materials, (2) a description of the three-year achievement monitoring plan and the tests, (3) a report of the data collection procedures, and (4) a discussion of the results. Samples of the tests, administrator's manuals, and complete item and test statistics appear in the appendices. (PN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

R. Rossmiller

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Working Paper No. 320

DATA COLLECTION PROCEDURES AND DESCRIPTIVE STATISTICS FOR THE GRADE TWO (SPRING) ACHIEVEMENT MONITORING TESTS (A-1 AND A-2), COORDINATED STUDY NO. 1

by

Anne E. Buchanan and Thomas A. Romberg

Report from the Program on Student Diversity
and Classroom Processes: Skill Development

Thomas A. Romberg and Thomas P. Carpenter

Faculty Associates

James M. Moser

Senior Scientist

Wisconsin Center for Education Research
The University of Wisconsin
Madison, Wisconsin

June 1982

The research reported in this paper was funded by the Wisconsin Center for Education Research which is supported in part by a grant from the National Institute of Education (Grant No. NIE-G-81-0009). The opinions expressed in this paper do not necessarily reflect the position, policy, or endorsement of the National Institute of Education.

Wisconsin Center for Education Research

MISSION STATEMENT

The mission of the Wisconsin Center for Education Research is to understand, and to help educators deal with, diversity among students. The Center pursues its mission by conducting and synthesizing research, developing strategies and materials, and disseminating knowledge bearing upon the education of individuals and diverse groups of students in elementary and secondary schools. Specifically, the Center investigates

- diversity as a basic fact of human nature, through studies of learning and development
- diversity as a central challenge for educational techniques, through studies of classroom processes
- diversity as a key issue in relations between individuals and institutions, through studies of school processes
- diversity as a fundamental question in American social thought, through studies of social policy related to education

The Wisconsin Center for Education Research is a noninstructional department of the University of Wisconsin-Madison School of Education. The Center is supported primarily with funds from the National Institute of Education.

Table of Contents

	Page
List of Tables	vii
List of Figures	ix
Abstract	xi
Introduction	1
Background Information	5
Subjects	5
Curriculum Materials and Instructional Objectives	5
Instruction	7
Achievement Monitoring Plan and Tests	8
Overview of the Three-Year Plan	8
Objectives Assessed in Grade 2 (Spring)	13
Description of the Tests	16
Data Collection Procedures	25
Test Groups	25
Schedule	26
Procedure	26
Results	28
Scoring the Tests	28
Subtest and Item Statistics	28
Progress on the Objectives	41
Conclusion	59
References	61
Appendices	
A Administrator's Manuals and Student Tests - Forms U, V, W	63
B Item Statistics for Forms U, V, W for the Total Population	105
C Performance by Objectives for the Two Schools and Six Classes	233

List of Tables

Table		Page
1	Time Spent on Instruction in Algorithm Topics	9
2	Objectives Assessed in Grade 2 (Spring)	15
3	Outline of Multiple-choice Subtest Items	17
4	Outline of Sentence-writing Free Response Subtest Items	22
5	Outline of Addition and Subtraction Facts Recall Items--Speeded Subtests	23
6	Item Content of Addition and Subtraction Algorithms Timed Subtests Forms U, V, and W	24
7	Assignment of Students to Test Form	25
8	Objective Subtest Statistics for Forms U, V, and W for Two Administration Times	30
9	Addition Facts Recall - Speeded Subtest Statistics for Forms U, V, and W for Two Administration Times	31
10	Subtraction Facts Recall - Speeded Subtest Statistics for Forms U, V, and W for Two Administration Times	32
11	Addition Algorithms - Timed Subtest Statistics for Forms U, V, and W for Two Administration Times	33
12	Subtraction Algorithms - Timed Subtest Statistics for Forms U, V, and W for Two Administration Times	34
13	Item Statistics for the Sentence-writing 0-20, subt-join-addend (11-15) Item, Item 11M in Form U	40
14	Progress Toward Objectives Across Administration Times as Represented by Proportion of Items Answered Correctly for Total Population	42
15	Relationship Between Items Attempted and Items Answered Correctly for the Algorithm Timed Tests	57

List of Figures

Figure		Page
1	Factors influencing pupil performance	2
2	Overview of Achievement Monitoring Plan	10

Abstract

This paper is the third in a series of four reports that document the achievement monitoring component of a three-year study on the acquisition of addition-subtraction problem-solving skills by young children. A set of performance objectives contained in or ancillary to ten instructional units on sentence-writing for verbal problems and algorithms specified test content. Tests measuring group progress toward these objectives were administered after each unit. Data for the tests given after the two units covered in the spring semester of grade 2 are presented in this paper. The scores for each objective, developed using matrix sampling procedures, indicated mastery of addition without regrouping, near-mastery of subtraction without regrouping, and substantial progress on the addition algorithm for numbers 0-99. These results reflected the instructional emphasis. No progress was made on the subtraction algorithm for numbers 0-99 for which no instruction occurred. There was marked improvement on several of the problem-solving 0-99 and sentence-writing 0-99 objectives not previously mastered and on certain algorithm 0-999 objectives as well. However, none of these objectives were actually mastered. Although for the most part existing mastery of the various objectives associated with the numbers 0-20 was maintained, there was a tendency toward a slight decline for those not previously mastered.

Introduction

The Mathematics Work Group of the Wisconsin Center for Education Research is presently conducting a program of research focused on children's acquisition of concepts and skills related to addition and subtraction of whole numbers. A major aim of mathematical instruction is to enable students to acquire concepts and skills requisite for solving problems of many types. A goal of our current research is to understand how pedagogical and psychological factors are related to their acquisition.

The interrelationship of pupil performance on selected arithmetic skills, pupil cognitive processes, instructional materials, and teachers' classroom behaviors is depicted in Figure 1. Using this framework, we are proceeding to:

1. identify important addition and subtraction skills;
2. review past empirical data or collect new data on these skills;
3. re-examine these mathematical skills and hypothesize how they are related to underlying cognitive skills;
4. examine the instructional materials designed to teach these skills; and
5. conduct a series of empirical studies on the appropriateness of particular teacher classroom behaviors, the appropriateness of instructional materials, and the relationship of specific cognitive skills to mathematical skills.

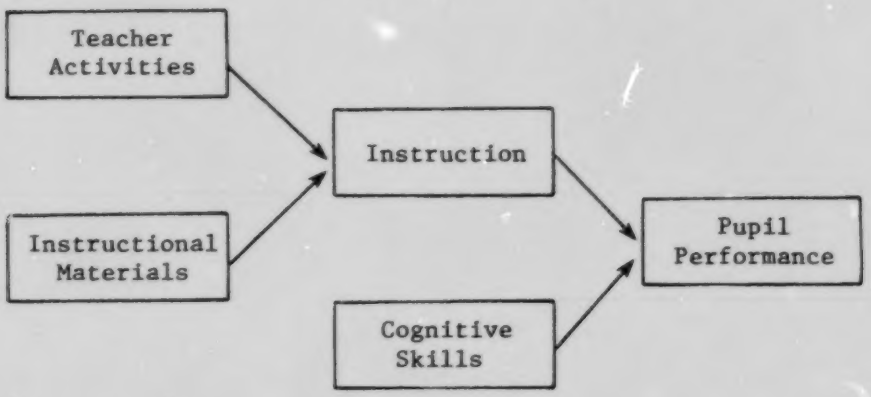


Figure 1. Factors influencing pupil performance.

The work of the Mathematics Work Group is built around the conceptual framework exemplified in Figure 1. The empirical and theoretical investigations generally involve two or more of the factors depicted and have been organized into four major categories. These are a conceptual paper series, a set of short empirical studies, a major longitudinal study, and an invitational conference of scholars.

This paper is one of a series of summary reports from the longitudinal study. Approximately 180 students in three schools were identified as subjects for the study. One school with about 60 students chose not to continue into the second year of the study. Thus, about 120 children were followed for three school years. Pupil performance was measured in several ways:

1. Individual interviews. At several times during each school year, individual children were administered a set of problem tasks dealing with addition and subtraction. The interviewer attempted to ascertain the children's solution strategy, correctness of answer, type of errors made, and modeling procedures.
2. Group-administered paper-and-pencil tests. There were two categories of tests:
   a. Achievement monitoring. These tests measured pupil progress toward a set of performance objectives contained in the instructional materials. By means of matrix sampling procedures, estimates were made of group performance. Achievement monitoring tests were

given shortly after the completion of the instructional units related to arithmetic objectives.

b. Topic inventories. These were very short tests that measured pupil progress toward mastery of the objectives of a specific instructional unit or topic. Every subject took the same test, resulting in a measure of individual performance.

Each topic inventory was given only once, providing a measure of performance on a few objectives at a single point in time; in contrast, there were repeated administrations of the same achievement monitoring test, in order to examine change in performance over time on a broad set of objectives.

Instruction and classroom environment were assessed by direct classroom observation of teacher actions, pupil behaviors, and instructional materials. A trained observer was present each day the instructional units, or topics, dealing with arithmetic objectives were used. Organizational and grouping measures were noted, along with interactions between teacher and pupils and among pupils. Measures of pupil engaged time were estimated by observing six target students.

The purpose of this paper is to report the administration of and results for the achievement monitoring tests given to grade 2 students during the spring semester of the second year of the study in the period March 1980 through May 1980. The tests were administered following instruction in the two algorithm topics (A-1 and A-2). The paper has four major sections: background information on the subjects and instructional materials, description of the three-year achievement monitoring plan and the tests, report of

the data collection procedures, and discussion of the results. Samples of the tests, administrator's manuals, and complete item and test statistics appear in the appendices.

Background Information

Subjects

The subjects were 120 second-grade students in six classes from two elementary schools in predominantly middle class areas.

Curriculum Materials and Instructional Objectives

Each of the schools used as their mathematics curriculum the Developing Mathematical Processes (DMP) program (Romberg, Harvey, Moser, & Montgomery, 1974). Ten new instructional topics on addition-subtraction, to be integrated into the regular DMP sequence of topics, had been developed for the three-year study. The topics covered during grade 1 (S-1, S-2, and S-3) were sentence-writing topics; three more sentence-writing topics (S-4, S-5, and S-6) which further developed the same objectives were completed in the fall semester of grade 2. For the spring semester of grade 2 and first months of grade 3, four algorithm topics (A-1 through A-4) were taught. Instruction in other DMP topics was carried out as usual in all three grades, except for topics replaced by the ten special topics.

The ultimate goal of the ten topics was that children develop efficient problem-solving behavior in addition and subtraction problem situations. The specific goals believed to result in this behavior are the

ability to symbolize verbal problems in the form of written addition or subtraction sentences and the ability to retrieve addition and subtraction "facts" and/or use addition-subtraction algorithms.

The content of the four algorithm topics, the first two of which were taught in the spring semester of grade 2, is summarized here:

Topic A-1. This topic introduced addition and subtraction of two-digit numbers with computation that involved no regrouping or renaming. The types of verbal problems covered in the six sentence-writing topics (joining, separating, and comparison) were presented again using two-digit numbers (see Buchanan & Romberg, 1982a). The problems were again analyzed using the part-part-whole chart, and horizontal and vertical sentences which represented the problems were written and solved. Computation with two-digit numbers not associated with verbal problems was also practiced.

Topic A-2. Two-digit addition problems requiring regrouping were introduced, including problems with a two-digit and a one-digit number. The addition algorithm was practiced both with problems arising from verbal situations and in isolation. Two-digit subtraction without regrouping was reviewed.

Topic A-3. Two-digit subtraction problems requiring regrouping were introduced and practiced both with and without a verbal problem context. Problems containing a two-digit and a one-digit number were also included. The inverse relationship between addition and subtraction was covered and the addition algorithm was practiced.

Topic A-4. The content of the preceding topics was reviewed. Problems with three addends were introduced.

The skills covered in these four topics were expressed formally by the following instructional objectives common to all:

1. Given an open addition or subtraction situation involving the numbers 0-99, writes a sentence that represents the situation.
2. Given two numbers whose sum is 0-99, computes their sum.
3. Given two numbers 0-99, computes their difference.

Of the many objectives included in the regular DMP topics taught in the grade 2 spring semester, only those which developed the notions of numerousness, ordering, and place value for the numbers 0-99 were essential in terms of the present study, since this content was prerequisite to the objectives of the algorithm topics. These prerequisite objectives were:

1. Given a set of 0-99 objects (or the spoken number), represents the numerousness of that set by writing the appropriate number.
2. Given a number 0-99, represents it physically or pictorially.
3. Given a set of numbers 0-99, orders them.
4. Given a number 0-99 writen in compact/expanded notation, writes it in expanded/compact notation.

Instruction

Instruction in the algorithm topics A-1 and A-2 occurred in the period from February 1980 to May 1980 for all classes except the lowest achievement group in school 1 which did not complete A-2 until the fall semester of grade 3. The topic pertaining to numerousness, ordering, and place value for the numbers 0-99 was completed just before A-1. The

teachers cooperated with the request that the two A topics be taught according to the specifications in the instructional materials.

The mathematics classes were homogeneously grouped at school 1 into four levels. The two classes in school 3 were heterogeneously grouped. (School 2 did not participate in the study after the first year.)

The time allowed for mathematics was:

school 1, four classes	35-minute periods daily
school 3, two classes	45-minute periods daily

It had been suggested that each topic be covered in about three weeks. The actual range of time spent by five of the six classes appears in Table 1 and indicates that most classes spent about the recommended time. Data for the school 1 low achievement class are not included in the table since the class did not finish A-2 in grade 2. It completed about one-half of the topic, spending 268 minutes in 3 days. Since there was much variability among classes in the amount of time per topic, interesting relationships to achievement might be demonstrated. However, no attempt to do so will be made in this report which is concerned with performance of the total population.

Achievement Monitoring Plan and Tests

Overview of the Three-Year Plan

Figure 2 presents an overview of the achievement monitoring plan for the three years of the study. All objectives on which performance was assessed are listed in abbreviated form with an indication of the points in time when instruction occurred, when mastery was expected, and when

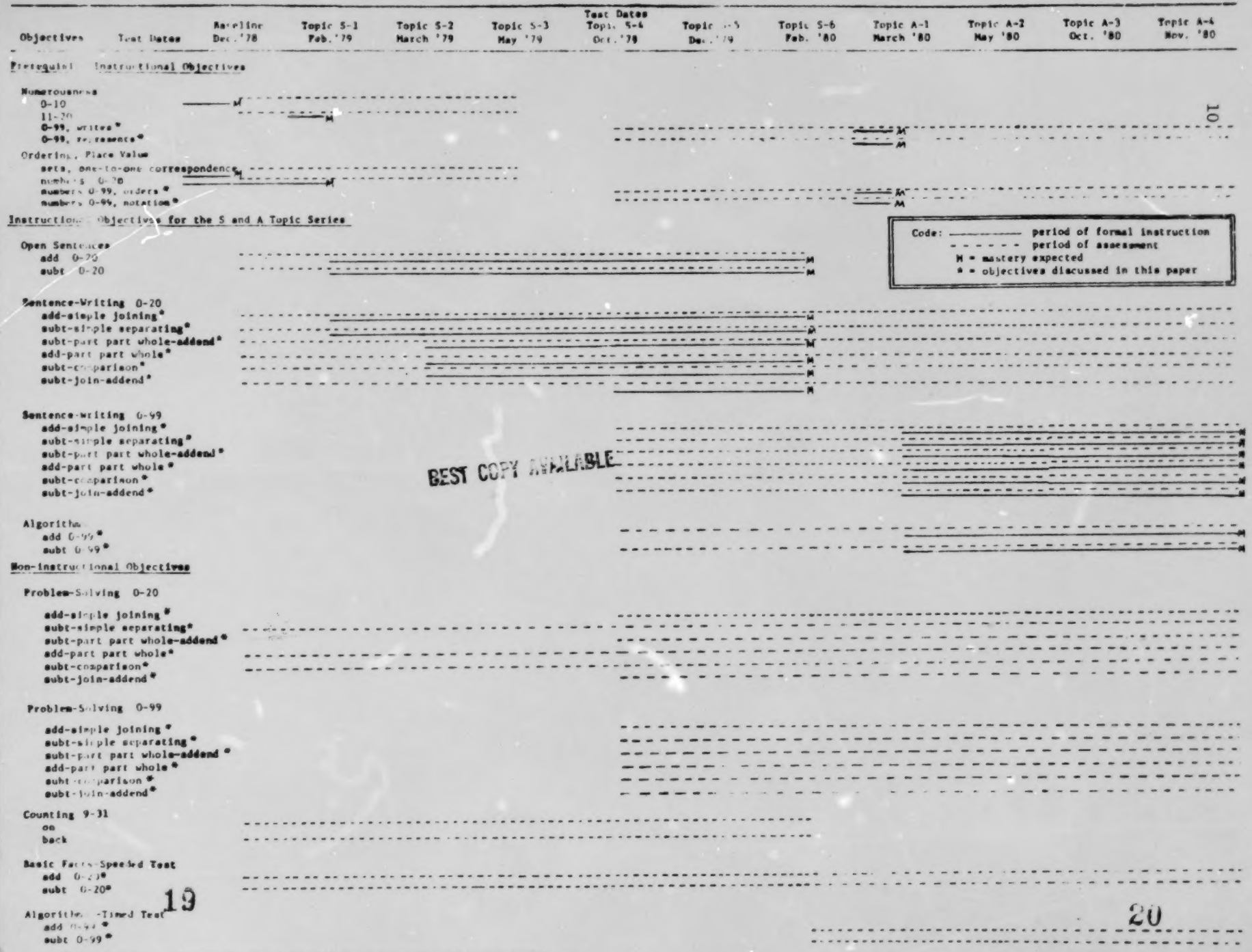
Table 1

Time Spent on Instruction in Algorithm Topics[a]

Topic	Minimum	Average	Maximum
A-1	461 min., 15 days[b]	557 min., 17.2 days	640 min., 19 days
A-2	462 min., 13 days	501 min., 15.4 days	541 min., 18 days

[a]The table does not include data for one class which did not finish A-2.

[b]Minutes and days do not necessarily represent the same class.



BEST COPY AVAILABLE

Figure 2. Overview of Achievement Monitoring Plan.

achievement was monitored. The schedule called for 11 test times: the baseline test and a test after each instructional topic.

Following the general rule that objectives should be assessed both prior to and following instruction, yet avoiding test situations which would be overly frustrating or extremely easy for the students, four overlapping test periods were identified and objectives added to or dropped from the achievement monitoring schedule accordingly. The four test periods covered the middle of grade 1 to the end of grade 1 (baseline through S-3), the middle of grade 1 to the middle of grade 2 (baseline through S-6), the beginning of grade 2 to the middle of grade 3 (S-4 through A-4), and the middle of grade 1 to the middle of grade 3 (S-1 through A-4). Achievement was assessed a minimum of four times and a maximum of 11 times per objective.

In order to limit the time any student spent in a testing situation and yet to gather a maximum amount of information about progress toward each objective, a matrix sampling plan based on earlier work in this area was followed (Romberg & Braswell, 1973). All students in each class were assigned randomly to one of three test groups. Each test group was then assigned one of three test forms for each administration period. Each objective was represented by items on at least two and usually all three of the test forms. A description of the tests is given in the following section.

The objectives included in the achievement monitoring program were classified as (1) prerequisite instructional objectives, which were those considered necessary for achievement of the objectives of the S and

A topics, (2) instructional objectives for the S and A topics, and (3) non-instructional objectives. The noninstructional objectives pertained to skills which were not formally taught in the regular DMP program or the S and A topics. However, since there was potentially a relationship between growth in these skills and progress on the formal instructional objectives, they were included in the test program. The noninstructional skills were:

1. problem-solving 0-20 and 0-99
2. counting on and counting back
3. recall of basic addition-subtraction facts under a speeded test condition
4. use of addition-subtraction algorithms under a timed test condition

The problem-solving objectives were created for achievement monitoring because the instructional objectives stated for the S and A topics specified sentence-writing skills and open sentence/algorithmic skills as discrete objectives but did not actually express in another objective the ability to integrate these skills in problem-solving situations. Assessment of problem-solving per se was also of interest because these data paralleled that gathered in the individual interview component of the study.

The objectives were also organized in terms of general mathematical content areas such as numerousness, ordering, and open sentences. (See Figure 2.) Each of these areas represented what may be thought of as a composite objective. For example, in the area of numerousness, there

was an individual objective related to writing 0-99 and another objective for representing 0-99; when these two objectives were treated as one, they formed a composite objective called numerousness. The composite objectives will be used in later analyses in which aggregate data are desirable to reduce the number of variables. In the present paper, the discussion primarily concerns individual objectives.

The sentence-writing objectives were stated as composite objectives in the instructional materials; that is, there was no explicit breakdown into individual objectives for each problem type, such as joining, separating and comparison. For two reasons, the sentence-writing objectives were broken down into several discrete objectives, each reflecting a different problem situation: first, the various problem situations were introduced at different points in the sequence of sentence-writing topics; second, and more importantly, the achievement monitoring data will eventually be integrated with data from the interview component of the study which was gathered and analyzed in terms of problem type.

Objectives Assessed in Grade 2 (Spring)

The prerequisite instructional objectives and the instructional objectives for the A topics included in the test program for grade 2 (spring) were stated in full in the first section. The sentence-writing objective for the S topics was also assessed, though the two open sentence objectives for these topics were dropped after S-6. Instruction for these three objectives had been completed at S-6 and the open sentence objectives had been mastered; however, three of the six verbal problem types (subt-

part part whole-addend, comparison, and subt-join-addend) for sentence-writing with numbers 0-20 had not been mastered (see Buchanan & Romberg, 1982a). The sentence-writing objective is:

> Given an open problem situation involving the numbers 0-20 that is solvable by using either addition or subtraction, writes a sentence that represents the situation.

The noninstructional skills for problem-solving, recall of basic facts under a speeded test condition, and use of addition and subtraction algorithms under a free response timed condition were assessed throughout this phase of the achievement monitoring. Counting was not assessed after S-6. The 34 individual objectives assessed in grade 2 (spring) are marked with an asterisk in Figure 2 and are summarized in Table 2.[1]

Mastery expectations were established for the prerequisite and S and A instructional objectives. The numerousness, ordering, and place value objectives for the numbers 0-99 were to be mastered just before the first A topic; that is, mastery was expected at the A-1 test time. Mastery of the sentence-writing objectives for numbers 0-20 had been anticipated after the completion of S-6 as explained above. It was anticipated that the three instructional objectives for addition and subtraction algorithms and sentence-writing for numbers 0-99 would be mastered upon completion of A-4.

---

[1] After the original specification of noninstructional objectives, it was decided to add 3-digit numbers (objectives) to the algorithm timed subtests and also to subdivide the timed test objectives according to criteria such as whether or not regrouping was required; therefore, the final number of objectives was > 34.

Table 2

Objectives Assessed in Grade 2 (Spring)

Numerousness
- writes 0-99
- represents 0-99

Ordering, Place Value
- ordering 0-99
- notation 0-99

Sentence-writing 0-20
- add-simple joining
- subt-simple separating
- subt-part part whole-addend
- add-part part whole
- subt-comparison
- subt-join-addend

Sentence-writing 0-99
- add-simple joining
- subt-simple separating
- subt-part part whole-addend
- add-part part whole
- subt-comparison
- subt-join-addend

Problem-solving 0-20
- add-simple joining
- subt-simple separating
- subt-part part whole-addend
- add-part-part-whole
- subt-comparison
- subt-join-addend

Problem-solving 0-99
- add-simple joining
- subt-simple separating
- subt-part part whole-addend
- add-part part whole
- subt-comparison
- subt-join-addend

Algorithms
- add 0-99
- subt 0-99

Basic Facts Recall--Speeded Tests
- add 0-20
- subt 0-20

Algorithms--Timed Test[a]
- add 0-99
- subt 0-99

[a]See footnote 1 on page 13.

There were no specific predictions for time of mastery for the non-instructional objectives; however, it was anticipated that performance on the recall and problem-solving skills for numbers 0-20 would be related to growth on the open sentence and sentence-writing 0-20 objectives. Similarly, it was presumed that problem-solving skills for numbers 0-99 and algorithmic performance under timed conditions would be related to status on the regular objectives of the A topics.

Description of the Tests

Three forms (U, V, W) of a 40-minute paper-and-pencil test were developed for the spring semester of grade 2 (and fall semester of grade 3); each form had six subtests. The major subtest contained 14 multiple-choice items covering all objectives to be assessed except for facts recall (speeded) and algorithms (timed). The second subtest measured performance on the sentence-writing 0-20 and 0-99 objectives in a free-response context. (These objectives were also included in the multiple-choice test.). Two subtests assessed recall of addition and subtraction facts under speeded test conditions. The final two subtests assessed addition and subtraction algorithm proficiency under timed conditions. Copies of the tests and administrator's manuals are in Appendix A; a discussion of the test development for all three years of the study appears elsewhere (Buchanan & Romberg, 1982b).

Multiple-choice subtest An outline of the content of each form of the multiple-choice subtest appears in Table 3. Each objective in the areas of numerousness, ordering/place value, and algorithms (not timed) was represented by one multiple-choice item on every test form; i.e., three items altogether per objective.

Table 3

Outline of Multiple-choice Subtest Items

Item ID[a]	Form U	Form V	Form W
1C	Numerousness writes 0-99	Numerousness writes 0-99	Numerousness writes 0-99
2D	Numerousness represents 0-99	Numerousness represents 0-99	Numerousness represents 0-99
3E	Problem-solving 0-20 (A) subt-simple separating 11-15	Problem-solving 0-20 (A) subt-comparison 11-15	Problem-solving 0-20 (A) add-part part whole 11-15
4F	Problem-solving 0-99 (A) subt-comparison 0-99	Problem-solving 0-99 (A) add-part part whole 0-99	Problem-solving 0-99 (A) subt-simple separating 0-99
5G	Problem-solving 0-20 (B) subt-join-addend 11-15	Problem-solving 0-20 (B) subt-part part whole-addend 11-15	Problem-solving 0-20 (B) add-simple joining 11-15
6H	Problem-solving 0-99 (B) add-simple joining 0-99	Problem solving 0-99 (B) subt-join-addend 0-99	Problem-solving 0-99 (B) subt-part part whole-addend 0-99
7I	Ordering, Place Value ordering 0-99	Ordering, Place Value ordering 0-99	Ordering, Place Value ordering 0-99
8J	Ordering, Place Value notation 0-99	Ordering, Place Value notation 0-99	Ordering, Place Value notation 0-99
9K	Sentence-writing 0-20 (A) add-part part whole 11-15	Sentence-writing 0-20 (A) subt-simple separating 11-15	Sentence-writing 0-20 (A) subt-comparison 11-15
10L	Sentence-writing 0-99 (A) subt-simple separating 0-99	Sentence-writing 0-99 (A) subt-comparison 0-99	Sentence-writing 0-99 (A) add-part part whole 0-99
11M	Sentence-writing 0-20 (B) subt-join-addend 11-15	Sentence-writing 0-20 (B) subt-part part whole-addend 11-15	Sentence-writing 0-20 (B) add-simple joining 11-15

continued

Table 3 (continued)

Item ID[a]	Form U	Form V	Form W
12N	Sentence-writing 0-99 (B) subt-part part whole-addend 0-99	Sentence-writing 0-99 (B) add-simple joining 0-99	Sentence-writing 0-99 (B) subt-join-addend 0-99
13O	Algorithms add 0-99	Algorithms add 0-99	Algorithms add 0-99
14P	Algorithms subt 0-99	Algorithms subt 0-99	Algorithms subt 0-99

[a]The numeric ID refers to the items as they are labeled in the computer printout reproduced in Appendix B. The alpha ID refers to the actual tests; items A and B are samples (see Appendix A).

Each of the 12 individual objectives for sentence-writing 0-20 and 0-99 was represented by a multiple-choice item in one of three forms; that is, one item per objective. Each verbal problem type (e.g., joining) was therefore represented by two items, one for numbers 11-15 and one for 0-99. The two items were on different forms.

The sentence-writing objectives (or items) were further classified into two groups: Sets A and B. This was an arbitrary division created because half (Set A) of the items were designed to reflect the interview verbal problems precisely in syntax, number order, number domain, etc., while the remainder (Set B) allowed variations in these characteristics in keeping with the instructional program which presented more variations of each problem type than it was possible to cover in the individual interview.[2]

Since there was no way in a multiple-choice format to have students actually write a sentence, the items required listening to a verbal problem read aloud and then choosing the sentence which correctly represented the verbal situation. The problem situation itself was not printed on the test page. This prevented reading difficulties and also was in keeping with the procedures for the interviews in which the problems were presented orally. Another subtest, explained below, contained sentence-writing items in a free-response format.

The assignment of items to test forms for the 12 objectives for problem-solving 0-20 and 0-99 exactly paralleled the assignment of

---

[2]For both the sentence-writing and problem-solving objectives, Set A test verbal problems differed from interview verbal problems in that different nouns and verbs were used so that the students had a new context to consider.

sentence-writing items. That is, there was one item per objective assigned to one of the three forms. The two items total per verbal problem type--one for 0-20 and one for 0-99--were assigned to different forms. The problem-solving items, which were also in Set A or B, required the student to listen to the story, which was not printed in the test booklet, and to choose the correct solution.

All of the questions in the multiple-choice section of the tests were read to the children and then the key phrases were repeated; in the case of the verbal problems for the sentence-writing and problem-solving objectives, the entire story situation was read twice. The children then marked an X on one of the four response choices; the solution, two distractors, and the "puzzled face," an option which indicated "I have not learned this yet." The response choices, symbols, and pictures were not read or explained to the children (except for the "puzzled face").

The "puzzled face" option was provided to avoid unnecessary frustration and to reduce the amount of random guessing. Although it was expected that the "puzzled face" choice would be used throughout the achievement testing because there would always be objectives not yet introduced and/or mastered, this option was particularly useful for baseline assessment such as for algorithms. Marking the "puzzled face" allowed children to give a positive response indicating that they hadn't learned to find the answer to the question.

Sentence-writing free-response subtests. The 12 individual sentence-writing objectives (verbal problem types) for the numbers 0-20 and 0-99 were also assessed in a free-response format in which a verbal problem was

read twice to the students who were directed to write a sentence for the situation and not solve the sentence. There were two 0-20 and two 0-99 items per form. All items were in Set A (see Table 4).

Speeded subtests. There were 12 addition and 12 subtraction facts on each of the three forms; the first six problems in each case covered the facts from 4 to 9; the last six involved 10 to 18 (see Table 5).

The addition and subtraction recall subtests were introduced by the test administrator; then specific directions on a tape recording preceded the items presented with intervals of 2 seconds' working time for both addition and subtraction. The intervals were based on previous studies in this area (Romberg, 1975). The children wrote their answers in designated spaces, leaving spaces for unknown facts empty. There was a short break between the two subtests.

Addition and subtraction algorithms timed subtests. These subtests each contained 24 items. The items were either 2-digit $\pm$ 2-digit or 3-digit $\pm$ 3-digit (or in a few cases, 2-digit $\pm$ 1-digit); 18 items required regrouping, 6 did not. The items were arranged in order of difficulty (see Table 6). For example, 3-digit problems not requiring regrouping preceded 3-digit problems which required regrouping and, for 3-digit regrouping problems, those in which only the ones were regrouped preceded those in which both ones and tens were regrouped. The students were instructed to try each problem in order (the problems were alphabetized) and to go on to the next problem is unable to do a particular example. Six minutes was allowed for each subtest.[3]

---

[3]The authors thank James Moser for his assistance in specifying item content and order.

Table 4

Outline of Sentence-writing Free Response Subtest Items

Item ID[a]	Form U	Form V	Form W
1A	Sentence-writing 0-20 subt-comparison 11-15	Sentence-writing 0-20 add-part part whole 11-15	Sentence-writing 0-20 subt-simple separating 11-15
2B	Sentence-writing 0-99 add-part part whole 0-99	Sentence-writing 0-99 subt-simple separating 0-99	Sentence-writing 0-99 subt-comparison 0-99
3C	Sentence-writing 0-99 subt-join-addend 0-99	Sentence-writing 0-99 subt-part part whole-addend 0-99	Sentence-writing 0-99 add-simple joining 0-99
4D	Sentence-writing 0-20 add-simple joining 11-15	Sentence-writing 0-20 subt-join-addend 11-15	Sentence-writing 0-20 subt-part part whole-addend 11-15

[a]The numeric ID refers to the items as they are labeled in the computer printout reproduced in Appendix B. The alpha ID refers to the actual tests (see Appendix A).

Table 5

Outline of Addition and Subtraction Facts

Recall Items--Speeded Subtests

Item ID[a]	Form U	Form V	Form W
	Addition Facts Recall Subtests		
1C	1 + 5	3 + 1	2 + 4
2D	3 + 2	2 + 5	6 + 3
3E	4 + 4	1 + 6	5 + 2
4F	3 + 6	7 + 2	2 + 3
5G	4 + 3	2 + 6	5 + 0
6H	6 + 2	3 + 5	1 + 3
7I	5 + 8	4 + 8	9 + 2
8J	6 + 9	3 + 7	6 + 6
9K	9 + 3	5 + 9	4 + 7
10L	5 + 7	6 + 8	7 + 6
11M	8 + 9	8 + 7	9 + 7
12N	3 + 8	4 + 9	6 + 4
	Subtraction Facts Recall Subtests		
1C	5 - 1	7 - 1	3 - 2
2D	9 - 2	8 - 4	6 - 4
3E	8 - 7	9 - 5	9 - 1
4F	5 - 3	7 - 4	7 - 3
5G	7 - 6	8 - 6	6 - 1
6H	8 - 5	4 - 3	7 - 5
7I	14 - 7	11 - 2	10 - 4
8J	12 - 5	13 - 8	13 - 9
9K	11 - 8	12 - 7	14 - 8
10L	13 - 7	15 - 9	11 - 7
11M	12 - 9	10 - 2	12 - 4
12N	15 - 8	16 - 7	17 - 9

[a]The numeric ID refers to the items as they are labeled in the computer printout repreduced in Appendix B. The alpha ID refers to the actual tests (see Appendix A).

Table 6

Item Content of Addition and Subtraction Algorithms Timed Subtests

Forms U. V, and W

Type of Problem	Number of Items
Addition Subtest	
2-digit without regrouping	3
3-digit without regrouping	3
2-digit + 1-digit with regrouping	3
2-digit with regrouping	3
3-digit with regrouping in ones	3
3-digit with regrouping in tens	3
3-digit with regrouping in ones and tens	3
3 2-digit addends with regrouping	3
Subtraction Subtest	
2-digit without regrouping	3
3-digit without regrouping	3
2-digit - 1-digit with regrouping	3
2-digit with regrouping	3
3-digit with regrouping in ones	3
3-digit with regrouping in tens	3
3-digit with regrouping in ones and tens	3
3-digit with regrouping in ones and tens, zero(s) in minuend	3

Data Collection Procedures

Test Groups

Following the matrix sampling plan described earlier, students in each class were randomly assigned to one of three test groups containing 11-12 students per group in school 3 and 25-26 per group in school 1. The test groups were assigned to one of the three test forms (U, V, W) according to the schedule in Table 7. Since there were three test times, the students took each form of the test once. However, because some items also appeared in the grade 1 and 2 (fall) tests, students would have taken these items at least twice and in some cases three times before. Because of absences and student mobility, the number of students actually tested after each topic varied somewhat. Also, because the classes moved at different paces through the topics, particularly where there was homogeneous grouping, it was not always possible to test an entire test group at one sitting.

Table 7

Assignment of Students to Test Form

Test Group	Administration Time	
	A-1	A-2
	Test Form Assignment	
1	W	V
2	U	W
3	V	U

Schedule

The achievement monitoring tests were given as soon as possible after each topic was completed. Since instruction in Topic A-1 took about three weeks and was followed by an intervening DMP topic which was not a part of the study, there was a six week interval between administrations.

Procedure

The tests were administered by Center staff members in one 40 minute sitting during the regular mathematics class periods. The practice of having Center administrators provided uniformity in administration procedures, relieved the teachers from this responsibility, avoided later "teaching to the test," and freed the teacher to participate in interviews with other Center staff.

Since most students had already participated in seven similar test sittings in grades 1 and 2 (see Buchanan & Romberg, 1982a), there was little administrative difficulty in giving the tests. Students were familiar and comfortable with most administrators and the general procedure as well as the format and most items or item types. The algorithm timed subtests had not been administered previously. Perhaps because of the novelty, most students enjoyed the challenge of completing these subtests in the allotted time. However, in general the familiarity with the rest of the test had a negative effect since some students had become increasingly bored by the repetitive testing. The teachers were helpful in motivating the students but nonetheless some were test-weary.

As described previously, the multiple-choice questions were read aloud. Most children had little problem following along. Pacing the multiple-choice subtest was at the administrators' discretion, with the general policy being to move the test along by encouraging children who were pondering at length to "mark the puzzled face." Apparently because of this option, the children did not appear to be discouraged by the few items that they had not met in formal instruction at the time.

One problem occurred during the free-response sentence-writing subtest which may have negatively affected performance on certain items. Despite reminders, some students failed to listen to the entire verbal story before beginning to write the number sentence. Since the numbers in the written sentence must be reversed from their order in the story for the comparison and join-addend situations, errors resulted when students did not correct themselves after starting the sentence with the first number they heard.

The taped subtests could not be stopped once started; however, examination of the response spaces showed that almost all children kept their place well. Even though there was only 2 seconds' working time between items, students were able to count out answers on their fingers, so that the responses represent a mixture of facts actually committed to memory and "facts" determined during the test. Some children expressed enjoyment in doing the recall tests, but for some the pressure of a timed test was continually frustrating.

The algorithm timed tests were fairly enjoyable for most students. When unable to use the addition or subtraction algorithm correctly, they

were not deterred from completing the majority of the problems using an invented algorithm, usually "buggy."

Results

Scoring the Tests

Subtest statistics and item parameters for each form were computed for all subtests at each administration time using the LERTAP program (Ne on, 1974). Scores representing progress on the objectives were then created for each administration by combining in a single score across forms the proportion correct for all individual items related to that objective; similarly, scores for the composite objectives incorporated the scores for all objectives related to the same content area. Thus, rather than item difficulties, or p values, what might be called "objective difficulties" were calculated to represent group progress toward mastery of the objectives. Since under the matrix sampling plan most objectives were represented by items on at least two and usually all three forms, the "objective difficulties" at any one test time were less affected by possible bias in the random assignment of students to test group than the item and subtest statistics.

Subtest and Item Statistics

Although the results by objective are of primary interest in the study, a brief report of the subtest and item results is offered first as background. The multiple-choice subtest was not developed as a standard norm-referenced measure but rather as a criterion-referenced test with each

item on any one form assessing mastery of a specific objective. Therefore, the total score on the subtest is an aggregate measure of performance on several objectives. Also, rather than the usual expectation that about half of the students would respond correctly to each item, it was expected that almost none, some, or almost all of the students might answer correctly depending on the status of instruction at the time of the test. Another factor affecting the subtest and item data for the multiple-choice subtest was guessing. The "puzzled face" or "I haven't learned this yet" option was offered to prevent random guessing but guessing still occurred. Another factor affecting the item and subtest analyses for all but the algorithm subtests was the relatively short test length. The small population of students tested was a factor affecting all analyses.

Tables 8-12 report the multiple-choice and recall subtest statistics for all forms and administration periods for the total population. Information included is the number of individuals tested, number of items, mean, standard deviation, highest and lowest score, Hoyt estimate of reliability, and the standard error of measurement. Since the sentence-writing subtest had only four items per form, subtest statistics are not reported.

The means and standard deviations indicate that the three forms were about equivalent in difficulty within each of the two administration periods. The reliabilities for five of the six test times for the multiple-choice subtests ranged from .62 to .72 which is satisfactory for tests of this type. However, at the A-1 test time, the reliability was .35 for Form W. For the addition and subtraction recall subtests, the respective reliabilities ranged from .78 to .89 and .72 to .86. The

Table 8

Objective Subtest Statistics for Forms U, V, and W

for Two Administration Times

Administration Time	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
	U	31	14	10.29	2.25	14	6	.65	1.28
A1	V	32	14	8.81	2.67	14	4	.72	1.37
	W	31	14	9.03	1.78	12	5	.35	1.39
	U	34	14	10.88	2.17	14	6	.67	1.21
A2	V	31	14	9.35	2.58	13	3	.71	1.33
	W	30	14	9.87	1.91	14	7	.62	1.13

Table 9

Addition Facts Recall - Speeded Subtest Statistics for Forms U, V, and W for Two Administration Times

Administration Time	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
	U	31	12	9.77	2.57	12	4	.82	1.03
A1	V	32	12	9.41	2.39	12	2	.78	1.09
	W	31	12	9.52	2.92	12	1	.87	1.01
	U	34	12	9.32	2.52	12	5	.79	1.11
A2	V	31	12	9.13	3.27	12	0	.89	1.03
	W	30	12	10.67	2.22	12	4	.84	.85

Table 10

Subtraction Facts Recall - Speeded Subtest Statistics for Forms U, V, and W for Two Administration Times

Administration Time	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
	U	31	12	8.32	2.26	12	4	.72	1.15
A1	V	32	12	7.78	2.85	12	2	.82	1.15
	W	31	12	6.97	2.90	12	0	.81	1.21
	U	34	12	7.88	2.88	12	1	.83	1.14
A2	V	31	12	7.61	3.24	12	1	.86	1.17
	W	30	12	8.70	2.72	12	1	.82	1.11

Table 11

Addition Algorithms - Timed Subtest Statistics for Forms U, V, and W

for Two Administration Times

Administration Time	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
	U	31	24	10.23	5.70	24	3	.93	1.49
A1	V	32	24	7.59	4.43	21	2	.89	1.41
	W	31	24	8.13	5.50	24	0	.95	1.26
	U	34	24	12.97	5.63	24	4	.91	1.61
A2	V	31	24	13.61	6.12	24	2	.92	1.67
	W	30	24	15.73	6.14	24	1	.93	1.56

Table 12

Subtraction Algorithms - Timed Subtest Statistics for Forms U, V, and W

for Two Administration Times

Administration Time	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
	U	31	24	5.77	3.02	19	2	.86	1.11
A1	V	32	24	5.75	2.03	9	0	.74	1.01
	W	31	24	4.65	2.33	10	0	.74	1.16
	U	34	24	4.88	2.31	10	0	.78	1.05
A2	V	31	24	5.10	2.61	10	0	.80	1.13
	W	30	24	5.77	3.10	19	0	.87	1.10

reliabilities for the addition and subtraction algorithm subtests, respectively, ranged from .89 to .95 and .74 to .87. The recall and algorithm subtests contained only one type of item so that somewhat higher reliabilities than for the multiple-choice subtests would be expected.

Item statistics for all subtests (including the sentence-writing subtest) for all forms and administration periods appear in Appendix B. The tables include the number and percentage of students selecting each response (the p-value or item difficulty), the point-biserial and biserial correlations with the subtest and the total test, and the average subtest and total test scores for individuals selecting the correct response.

For the multiple-choice subtest the p-values increased from S-6 to A-1 for 19 of the 42 items, remained constant ($\pm$ 5%) for 13, and decreased for 10. (S-6 item data were reported in Buchanan & Romberg, 1982a, and are discussed here to provide a point of reference for A-1 data.) Between A-1 and A-2 the situation was quite similar. The p-values increased for 16 items, remained the same for 16, and decreased for 10. Of the 42 items, 9 had p-values $\geq$ 90.0% at S-6; 7 of these p-values remained $\geq$ 90.0% at A-1. At A-1 there were a total of 13 items with p-values $\geq$ 90.0%; 11 stayed $\geq$ 90.0% at A-2. There were a total of 15 items with p-values $\geq$ 90.0% at A-2.

As a group, the six multiple-choice items associated with the addition and subtraction algorithm objectives showed the most interesting and dramatic changes in p-values, not surprisingly since instruction focused on two-digit addition and subtraction in A-1 and A-2. In A-1 addition

and subtraction without regrouping was taught; in A-2 the addition algorithm was introduced. (The subtraction algorithm was not covered in grade 2.) The p-values for item 14P in Form U, which contained the nonregrouping two-digit subtraction problem $\begin{array}{r} 67 \\ -\ 42 \end{array}$, increased from 44.4% at S-6 to 87.1% at A-1 clearly reflecting instruction. There was some loss thereafter, to 70.6% at A-2. For one of the addition problems with regrouping, $\begin{array}{r} 29 \\ +\ 64 \end{array}$ (item 130 in Form U), there was some loss between S-6 and A-1, from a p-value of 48.1% to 38.7%, but then a dramatic increase to 85.3% at A-2 which can be attributed to the introduction of the algorithm. For the other addition item with regrouping, $\begin{array}{r} 16 \\ +\ 44 \end{array}$ (item 130 in Form V), p-values also dropped from 58.6% at S-6 to 31.3% at A-1. However, after the introduction of the addition algorithm, performance improved substantially to 77.4% at the A-2 test time. Similarly, the subtraction item containing a two-digit and a one-digit number, $\begin{array}{r} 32 \\ -\ 5 \end{array}$ (item 14P in Form W), had a p-value of 60.6% at S-6 which decreased dramatically at A-1 to 29.0%. However, in this case at A-2 the p-value remained low, 36.7%, which probably can be attributed to the fact that no instruction occurred on this type of problem. The deterioration of scores from S-6 to A-1 is interesting. Examination of the distractors suggests that students counted, guessed, or appropriately marked the puzzled face prior to instruction in the larger numbers and in algorithms; afterwards they apparently gained confidence and attempted to solve the problems computationally but had "buggy" procedures.

The other two items for the algorithm objectives had less striking changes in p-values but they were also consistent with instruction. The addition nonregrouping item, $\begin{array}{r} 53 \\ +\ 34 \end{array}$ (item 130 in Form W), had successively

increasing p-values of 69.7%, 77.4%, and 96.7%. The subtraction regrouping problem, $\begin{array}{r} 85 \\ -\ 59 \end{array}$ (item 14P in Form V), showed only decreases, from 27.6% at S-6 to 12.5% and 3.2% at A-1 and A-2, in part because students increasingly utilized a "buggy" algorithm.

There were some notable and not always explicable changes in p-values for certain sentence-writing and problem-solving multiple-choice items, both for numbers 0-20 and 0-99. For the add-part part whole verbal problem in particular the results are confusing. While the p-values for the add-part part whole item assessing the sentence-writing 0-20 objective (9K in Form U) remained very high at S-6, A-1, and A-2 (96.6%, 96.8%, 100.0%), the comparable item for problem-solving 0-20 (3E in Form W) had successive p-values of 100.0%, 64.5%, and 96.7%. On the other hand for larger numbers the item which measured sentence-writing 0-99 for add-part part whole (10L in Form W) exhibited a decrease from 97.0% at S-6 to 74.2% at A-1 and an increase at A-2 (90.0%) while the problem-solving 0-99 item (4F in Form V) increased overall (44.4%, 50.0%, 80.6%) which is consistent with instruction since this item required regrouping, taught in A-2. Further examples of anomalous p-values for the verbal problem items will be discussed in the section on results for the objectives, which in the case of problem-solving and sentence-writing objectives are assessed by a single item.

The three multiple-choice items assessing notation 0-99 for the ordering/place value area were especially difficult. For example, successive p-values for item 8J in Form V were 7.4%, 21.9%, and 25.8%.

These items required both regrouping (in order to rename numbers) and in two cases knowledge of DMP notation. Probably they did not appropriately reflect instruction which stressed simple recognition or naming of the place value of digits.

The 12 items in the free-response sentence-writing subtest on the whole exhibited few dramatic changes in p-values from S-6 to A-1 to A-2, especially for the 0-20 items. These p-values will also be discussed in connection with the objective data.

For the individual items (basic facts) in the two recall tests, p-values fell into two groups at A-1 and A-2 corresponding to the facts with sums/minuends 4-9 and 10-18, or "easy" and "hard" facts. For the "easy" facts for both addition and subtraction, p-values were $\geq$ 80% in almost all cases; about two-thirds of the time the p-values were $\geq$ 90%. There was more variation for the "hard" facts. About two-thirds of the time the addition "hard" facts p-values ranged from 60-75% while subtraction "hard" facts had p-values ranging from 25-45%. Increases (or decreases) in p-values from A-1 to A-2 tended to be associated with test form and probably reflected some bias in test group assignment or administration. That is, p-values in Form U tended to decrease, in Form V some increased and some decreased, and in Form W most increased. There was some effect of item position on p-values in the recall subtests, but this was not systematically examined since the items were randomly ordered and the aggregate scores for all items associated with the objective are of primary interest in the study.

The p-values for the algorithm subtests were related to item type and position in the test. Since the items were arranged in order of difficulty, some students were unable to do and/or never attempted items near the end of the test. For example, an early item for addition with two-digit numbers requiring no regrouping (3C in Form W) had p-values of 87.1% at A-1 and 96.7% at A-2. In contrast, a later three-digit addition regrouping item (21T in Form W) had successive p-values of 6.5% and 26.7%. (The algorithm subtests were not given at S-6; only a small sample of items was administered at that time.)

For the majority of items biserial correlations with the subtest score were adequate or better ($\geq .30$) for the correct response and negative ($\leq -.20$) for incorrect responses. The "puzzled face" option in the multiple-choice subtest was used appropriately as indicated by the biserials for this response choice, which were almost always strongly negative. That is, children who chose this response for particular items also had low scores on the total subtest.

Interesting item statistics in terms of the study as a whole occurred for items assessing the sentence-writing 0-20 and 0-99 objectives for the two addend and the comparison situations. An example (item 11M in Form U) is presented in Table 13. The distractor containing the reverse operation (plus sign) was very attractive at all test times. All of the items for these three subtraction situations included one or two distractors which were addition sentences, most of which were powerful distractors, although this varied from test time to test time according to problem type. The

Table 13

Item Statistics for the Sentence-writing 0-20, subt-join-addend (11-15) Item, Item 11M in Form U[a]

Test Time	Response Chioce	Proportion	Biserial Correlation	Total Subtest Score
S-6 N = 29	(1) 8 - 6 = □ (includes solution)	6.9	-.37	10.50
	(2) 14 + 8 = □ (reverse operation)	51.7	.18	13.20
	(3) 14 - 8 = □ (correct response)	31.0	.29	13.78
	(4) puzzled face	10.3	-.69	9.00
A-1 N = 31	(1) 8 - 6 = □ (includes solution)	9.7	-.16	9.67
	(2) 14 + 8 = □ (reverse operation)	32.3	-.77	8.40
	(3) 14 - 8 = □ (correct response)	51.6	.82	11.69
	(4) puzzled face	6.5	-.18	9.50
A-2 N = 34	(1) 8 - 6 = □ (includes solution)	2.9	-.59	8.00
	(2) 14 + 8 = □ (reverse operation)	52.9	-.76	9.67
	(3) 14 - 8 = □ (correct response)	41.2	.91	12.71
	(4) puzzled face	2.9	-.18	10.00

[a]The item read: This number story is about a plant. Mark the number sentence that tells how to find the answer. A plant was 8 cubes tall. It grew some. Now it is 14 cubes tall. How much did it grow?

power of the sentence-writing reverse operation distractors may be related to the tendency shown in the individual interviews to use additive strategies such as counting up from a given number or adding on with manipulatives in solving some subtraction verbal problems, particularly the comparison and subt-join-addend problems. (See Anick, Buchanan, Carpenter, Moser, & Steinberg, 1981; Anick & Moser, 1980; Kouba & Moser, 1980). Also, apparently the emphasis on addition in A-2 encouraged the tendency toward choosing this distractor in some cases. For the illustrative item at A-1 it was chosen 32.3% of the time while at A-2 it was selected 52.9% of the time.

Progress on the Objectives

In this section the results of aggregating the item data to create scores representing progress on each objective will be discussed. The objective data ("objective difficulty") will be related to the instructional program the students experienced. The proportion correct for each individual objective and for the composite objectives for the total population at all administration times is reported in Table 14; results for each school and class appear in Appendix C. The S-6 test time data which were gathered in the fall semester of grade 2 are included in Table 14 as a point of reference for the discussion (see Buchanan & Romberg, 1982a). As noted previously, only the data for individual objectives are of interest here--data for the composite objectives were prepared for subsequent analyses.

Table 14

Progress Toward Objectives Across Administration Times as Represented by Proportion of Items Answered Correctly for Total Population

Description of Objectives	Number of Items	Results for Objectives S-6[a]	A-1	A-2	Number of Items	Results for Composite Objectives S-6	A-1	A-2
Prerequisite Instructional Objectives								
Numerousness								
writes 0-99	3	77.5	86.2	88.4				
represents 0-99	3	85.4	88.3	94.7	6	81.5	87.2	91.6
Ordering, Place Value								
orders 0-99	3	78.7	89.4	83.2				
notation 0-99	3	12.4	18.1	26.3	6	45.5	53.7	54.7
Instructional Objectives for S,A Topics								
Sentence-Writing 0-20								
add-simple joining (B)	1	100.0	90.3	93.3				
subt-simple separating (A)	1	100.0	96.9	96.8				
subt-part part whole-addend (B)	1	59.3	75.0	54.8				
add-part part whole (A)	1	96.6	96.8	100.0				
subt-comparison (A)	1	72.7	71.0	70.0				
subt-join-addend (B)	1	31.0	51.6	41.2	6	77.0	80.3	75.8
Sentence-Writing 0-20 (Free Response)[b]								
add-simple joining	1	96.6	100.0	94.1				
subt-simple separating	1	97.0	96.8	93.3				
subt-part part whole-addend	1	78.8	80.6	66.7				
add-part part whole	1	100.0	96.9	100.0				
subt-comparison	1	48.3	51.6	52.9				
subt-join-addend	1	59.3	62.5	54.8	6	80.3	81.4	76.8

(continued)

Table 14 (continued)

Description of Objectives	Number of Items	Results for Objectives S-6	A-1	A-2	Number of Items	Results for Composite Objectives S-6	A-1	A-2
Sentence-Writing 0-99								
add-simple joining (B)	1	92.6	90.6	90.3				
subt-simple separating (A)	1	72.4	90.3	91.2				
subt-part part whole-addend (B)	1	48.3	74.2	73.5				
add-part part whole (A)	1	97.0	74.2	90.0				
subt-comparison (A)	1	37.0	46.9	38.7				
subt-join-addend (B)	1	21.2	41.9	46.7	6	61.2	69.7	72.1
Sentence-Writing 0-99 (Free Response)								
add-simple joining	1	87.9	90.3	100.0				
subt-simple separating	1	96.3	100.0	90.3				
subt-part part whole-addend	1	74.1	78.1	64.5				
add-part part whole	1	86.2	100.0	94.1				
subt-comparison	1	57.6	35.5	46.7				
subt-join-addend	1	37.9	45.2	41.2	6	73.0	75.0	72.6
Algorithms								
add 0-99	3[c]	59.6	48.9	86.3				
subt 0-99	3[c]	44.9	42.6	37.9	6	52.3	45.7	62.1
Noninstructional Objectives								
Problem Solving 0-20								
add-simple joining (B)	1	87.9	100.0	96.7				
subt-simple separating (A)	1	86.2	90.3	94.1				
subt-part part whole-addend (B)	1	85.2	78.1	77.4				
add-part part whole (A)	1	100.0	64.5	96.7				
subt-comparison (A)	1	85.2	59.4	77.4				
subt-join-addend (B)	1	82.8	90.3	94.1	6	88.2	80.3	89.5
Problem-Solving 0-99								
add-simple joining (B)	1	62.1	67.7	79.4				
subt-simple separating (A)	1	33.3	29.0	16.7				
subt-part part whole-addend (B)	1	27.3	29.0	13.3				
add-part part whole (A)	1	44.4	50.0	30.6				
subt-comparison (A)	1[d]	51.7	67.7	76.5				
subt-join-addend (B)	1[d]	59.3	65.6	71.0	6	45.5	51.6	57.4

(continued)

Table 14 (continued)

Description of Objectives	Number of Items	Results for Objectives S-6	A-1	A-2	Number of Items	Results for Composite Objectives S-6	A-1	A-2
Recall of Basic Facts (Speeded Tests)								
add 0-20					36	79.1	79.7	80.7
subt 0-20					36	65.3	64.1	67.1
Algorithms (Timed Tests)								
add 2-digit, no regrouping	9(3)[e]	63.7	90.4	94.7				
add 2-digit, regrouping	18(6)	34.1	30.5	72.3	27(9)	44.0	50.5	79.8
add 3-digit, no regrouping	9(2)	43.2	86.5	86.0				
add 3-digit, regrouping	27(3)	14.6	15.4	41.5	36(5)	26.0	33.2	52.6
3 2-digit addends, regrouping	9(1)	13.9	3.9	18.6	9(1)	13.9	3.9	18.6
subt 2-digit, no regrouping	9(3)	54.0	86.2	81.4				
subt 2-digit, regrouping	18(6)	11.5	7.8	7.4	27(9)	25.7	33.9	32.0
subt 3-digit, no regrouping	9(3)	44.2	74.1	75.4				
subt 3-digit, regrouping	36(3)	1.8	1.0	.7	45(6)	23.0	15.6	15.6

Note. For those objectives for which there are three items, the number of subjects represented in the proportion correct at a particular test time is ascertained simply by summing the N's for the three forms; however, when there are more or less than three items, the N is increased or decreased by 27-39 subjects per item.

		S-6	A-1	A-2
Form U	N =	29(38)	31	34
Form V	N =	27(36)	32	31
Form W	N =	33(39)	31	30

The numbers in parentheses are the N's for the Algorithm Timed Tests which were given on a different day.

[a] S-6 data were collected in the fall semester and are included here to provide a point of reference for A-1 data.
[b] Unless otherwise indicated, items were multiple choice.
[c] One of the three items did not require regrouping.
[d] This item did not require regrouping.
[e] The numbers in parentheses refer to the sample of items given at S-6.

The sentence-writing objectives for the S and A topics were not stated in terms of particular verbal problem types in the instructional materials, but for purposes of achievement monitoring each type was treated as an individual instructional objective. This was also true for the problem-solving objectives. Since each verbal problem type is represented by only one item, objective difficulty is the same as a p-value or item difficulty and therefore the results for sentence-writing and problem-solving must be considered with caution. The algorithm 0-99 objectives also were stated in general terms in the instructional materials but were subdivided for assessment purposes according to whether or not regrouping was required. Again, this was true for the 0-999 algorithm objectives as well.

Numerousness; ordering, place value. Instruction on the four prerequisite instructional objectives related to the numbers 0-99 occurred between the S-6 and A-1 test times. Performance at S-6 indicated a high degree of familiarity with the two numerousness objectives and one of the ordering/place value objectives despite the lack of formal instruction; after instruction the A-1 and A-2 scores were at or near mastery level.[4] For example, A-2 scores were 88.4%, 94.7%, and 83.2%, respectively, for writes 0-99, represents 0-99, and orders 0-99.

The fourth objective for ordering/place value (notation 0-99) was extremely difficult at all three test times with successive scores of 12.4%, 18.1%, and 26.3%. The three items for this objective required students to perform fairly complex regrouping of numbers and in two

---

[4] A proportion correct $\geq$ 90% is the criterion for mastery. While it is recognized that not every student will have mastered an objective using this criterion, it allows for measurement error and assures that most students have reached mastery.

cases incorporated the unique DMP notation for place value. For example, item 8J in Form U contained the number 26 in the stem and three response choices: 20(10) + 6, 1(10) + 16, and 2(10) + 16. This item type probably did not accurately reflect the effectiveness or emphasis of instruction which stressed recognition of the value of each digit (place) in a number rather than regrouping procedures.

A high level of performance on these prerequisite objectives was desirable because instruction in the algorithm topics assumed students understood the numbers 0-99. Since scores on several of the instructional objectives for these topics were at mastery level both in the spring semester (as discussed below) and even early in the fall semester (see Buchanan & Romberg, 1982a), there is little reason to believe that the poor showing on the single prerequisite objective had any bearing on performance in general.

Sentence-writing 0-20. The sentence-writing data in Table 14 are annotated by the labels described earlier, Sets A and B, according to whether or not item characteristics such as syntax corresponded to interview tasks. This distinction may be useful in future analyses relating interview and achievement monitoring data.

As of S-6 all of the sentence-writing 0-20 objectives should have been mastered according to the program specifications. However, at that time the two addition and the subt-separating objectives had been attained while the three remaining subtraction objectives (subt-part part whole-addend, subt-comparison, subt-join-addend) had not been mastered in either the multiple-choice or free-response test modes.

Although there was no instruction on sentence-writing 0-20 during A-1 and A-2, in A-1 the subtraction verbal situations were reviewed in conjunction with the introduction of addition and subtraction of two-digit numbers without regrouping. Apparently this review had some transfer benefit to sentence-writing with smaller numbers for the subt-part part whole-addend and subt-join-addend objectives in that scores improved, respectively, from 59.3% at S-6 to 75.0% at A-1 and 31.0% (S-6) to 51.6% (A-1) in the multiple-choice context. There was negligible change for these two objectives from S-6 to A-1 in the free-response mode, however, possibly because S-6 scores were higher (i.e., 78.8%, 59.3%) than in the multiple-choice mode leaving less room for growth. After A-2 in which only addition verbal problems were covered, the scores dropped for both of the addend objectives in both modes so that there was little overall improvement from S-6 to A-2.

As discussed in the section pertaining to item data, the distractors containing the reverse operation were attractive at all test times, but particularly at A-2 for the two addend objectives (items) in the multiple-choice subtest. For example, for item 11M in Form V which assessed the subt-part part whole-addend objective, the distractor containing the reverse operation was chosen 29.6% of the time at S-6, 15.6% at A-1, and 38.7% at A-2. It may be that the instructional emphasis on addition problems in A-2 influenced students to revert to these distractors after having improved their performance at A-1. This notion seems supported by the fact that the scores for the addend objectives in the free-response subtest also dropped at A-2 (though they had not shown the same improve-

ment from S-6 to A-1) because more students wrote an erroneous addition sentence.

Scores for the subt-comparison objective remained virtually constant at all three test times in both test contexts and apparently were not affected by instruction. It is interesting that the free-response score for the subt-comparison objective was lower than the multiple-choice score while the reverse was true for the two addend objectives.

Mastery status on the two addition and the subt-separating objectives was maintained from S-6 to A-1 and A-2. In summary, for the six sentence-writing 0-20 objectives, there was little notable or permanent change in scores from the S-6 to A-2 test times, a result consistent with instruction in that it did not directly focus on these objectives.

Sentence-writing 0-99. The results for sentence-writing with larger numbers were parallel in many respects to the results for smaller numbers. Though there had been no instruction on the numbers 0-99 or in sentence-writing 0-99 at the S-6 test time, both the add-joining and add-part part whole objectives had already been mastered as measured by the multiple-choice subtest (92.6% and 97.0%) and had virtually been mastered in the free-response mode (87.9%, 86.2%). The subt-separating objective had been mastered at S-6 in the latter setting (96.3%) though, inexplicably, the multiple-choice S-6 score was 72.4%. At A-1 and A-2 all three objectives had mastery level scores in all cases except for one anomalous score (at A-1 the score for the add-part part whole objective in the multiple-choice mode was 74.2%).

The other three subtraction objectives for sentence-writing 0-99 had not been mastered at S-6; after instruction on the numbers 0-99 during the interim period between S-6 and A-1 and on addition and subtraction with two-digit numbers without regrouping in A-1, there was notable improvement on the multiple-choice subtest for the subt-part part whole-addend and subt-join-addend objectives. The score for the first addend objective at S-6 was 48.3% which improved markedly to 74.2% at A-1; similarly, the score for the second addend objective increased from 21.2% to 41.9%. There was slight improvement from S-6 to A-1 for both addend objectives in the free-response mode but after A-2 instruction in which only addition problems were included, there were drops in scores for both objectives. In fact the decline for the subt-part part whole-addend objective resulted in an A-2 score (64.5%) which was lower than the S-6 score (74.1%). The reverse operation distractors were attractive at all three test times for the three nonseparating subtraction situations though the increased tendency to select them at A-2 occurred only for the comparison problem.

The results for the subt-comparison objective were inconsistent from test time to test time in the two modes. At A-1 improvement was shown in the multiple-choice context and a substantial loss in the free-response mode. Overall from S-6 to A-2, however, there was negligible change in the multiple-choice context (37.0%, 38.7%) and some decrease in the free-response mode (57.6%, 46.7%). In contrast to the data for the 0-20 objective, there seemed to be more success on the free-response test than on the multiple-choice test.

In conclusion, while three of the six sentence-writing 0-99 objectives were virtually mastered prior to instruction, progress on the three more difficult subtraction sentences seemed to be dependent on instruction though the results were not totally consistent. After A-1 there was definite improvement on all three objectives on the multiple-choice subtest and on the two addend objectives on the free-response subtest. However, after A-2 in which these situations were not covered, minimal progress occurred and/or there were decreases in scores.

Algorithms. The three multiple-choice items for each algorithm objective provided an overview of algorithmic skill. The timed algorithm tests, discussed below, provided a comprehensive measure of algorithmic skill.) One of the three items for each operation did not require regrouping, i.e., $\underset{+\ 44}{53}$, $\underset{-\ 42}{67}$. One of the two items which required regrouping also could readily be solved by counting, i.e., $\underset{29}{\underline{+\ 44}}$, $\underset{85}{\underline{-\ \ 5}}$. The third item was a standard regrouping problem, i.e., $\underline{+\ 64}$, $\underline{-\ 59}$.

The effect of instruction on performance for the addition objective was very dramatic; prior to the introduction of the algorithm, scores at S-6 and A-1 were 59.6% and 48.9%. After instruction the A-2 score was 86.3%. As discussed previously relative to the item statistics, most students obviously grasped the procedure immediately. For example, the A-1 p-value for item 130 in Form U ($\underset{29}{\underline{+\ 64}}$) was 38.7% while at A-2 the score was 85.3%.

Contrary to expectations, there was a small overall drop in scores from S-6 (44.9%) to A-2 (37.9%) for the subtraction algorithm objective. It had been expected that there would be some progress on this objective

reflecting the work in A-1 with subtraction of two-digit numbers not requiring regrouping, and as predicted, the nonregrouping item ($\frac{67}{-42}$, item 14P in Form U) had a p-value at S-6 of 44.4% and at A-1 and A-2 of 87.1% and 70.6%. However, the improvement on this item was negated by the regression on the other two subtraction items; item 14P in Form W ($\frac{32}{-5}$) had successive p-values of 60.6%, 29.0%, and 36.7%, and item 14P in Form V ($\frac{85}{-59}$) had p-values of 27.6%, 12.5%, and 3.2%. Apparently, students gained the confidence to try solving these problems computationally (rather than guessing, counting, or marking the "puzzled face") but could not do so accurately.

Problem-solving 0-20. The problem solving items required the child to select the correct answer for the verbal situations. Again the data in Table 14 are labeled for Sets A and B though this distinction is not of interest here.

At S-6 scores for all six problem-solving 0-20 objectives were near or at mastery level. Although there was no review of these objectives during A-1 or A-2, there was practice on verbal problems with larger numbers so it was not surprising that at A-2 mastery status for both addition objectives, the subt-separating objective, and the subt-join-addend objective had been maintained. Perhaps due to some anomaly in the testing, there was a startling drop in the score for the add-part-part whole objective from S-6 (100.0%) to A-1 (64.5%) which was cancelled at A-2 (96.7%). Scores for the subt-part part whole-addend and subt-comparison objectives declined somewhat overall from S-6 to A-2, from

85.2% to 77.4% in both cases. There was also a drop for the comparison objective at A-1, to 59.4%.

In general, however, problem-solving skills were maintained quite well without direct instruction. Also, problem-solving 0-20 performance was better than sentence-writing 0-20 performance for the three more difficult subtraction objectives. This discrepancy is particularly notable for the subt-join-addend situation which had A-2 scores of 41.2% (multiple-choice) and 54.8% (free response) for sentence-writing and 94.1% for problem-solving.

Problem-solving 0-99. It is difficult to compare performance on the six problem-solving 0-99 objectives as a group because the items for two of the objectives did not require regrouping--the subt-comparison and subt-join-addend items--so these objectives were no doubt relatively less difficult than they might have been. Scores for both improved consistently from S-6 to A-1 to A-2, probably reflecting review of these verbal situations and the introduction of two-digit numbers and computation (without regrouping). Progress on the two addition objectives was also consistent with instruction, very clearly mirroring the introduction of the addition algorithm at A-2. For example, the scores for the add-part part whole objective for S-6, A-1, and A-2 were 44.4%, 50.0%, and 80.6%. At A-2 the scores for these four objectives were all in the 70-80% range.

Performance on the two remaining objectives, subt-separating and subt-part part whole-addend, was poor at S-6 and A-1 and deteriorated at A-2. The respective scores for S-6, A-1, and A-2 were 33.3%, 29.0%, and 16.7%; and 27.3%, 29.0%, and 13.3%. Examination of the distractors for

the subt-separating item (item 4F in Form W) indicates that more students attempted to solve the problem algorithmically at A-2 but used a "buggy" algorithm. For the addend item (item 6H in Form W) at A-2 there was increased tendency to add to solve, i.e., to reverse the operation. Probably in both cases the emphasis in A-2 on addition and the addition algorithm influenced the choice of distractors.

In summary, for the two addition problem-solving 0-99 objectives and the two subtraction objectives assessed by items not requiring regrouping, progress from S-6 to A-2 was steady and positively affected by instruction. For the two subtraction objectives containing items requiring regrouping, scores were low initially and declined further apparently negatively affected by instruction which was not directed toward these objectives.

Recall of addition and subtraction facts (speeded tests). Increasing the speed with which students could respond to open sentences (basic facts) was not a formally stated objective of instruction for the A topics. However, it was anticipated that in the course of instruction teachers would employ standard techniques for facts recall such as flash card drills to varying degrees. This practice plus use of the facts within two-digit computation was expected to produce improved facility in recall.

However, there was negligible improvement on these objectives from the S-6 to A-1 to A-2 test times. Scores for addition were 79.1%, 79.7%, and 80.7%; for subtraction they were 65.3%, 64.1%, and 67.1%. Perhaps students had simply reached a plateau, or, there was so little instructional emphasis in this area due to the preoccupation with two-digit numbers and the addition algorithm that performance was not influenced.

Algorithms (timed tests). Although the algorithm objectives as assessed under timed conditions were somewhat arbitrarily classified as noninstructional objectives, these tests were essentially a free-response measure of the regular, instructional algorithm objectives for the numbers 0-99, particularly since so many students completed all items. The timed tests also included 3-digit numbers (algorithms) which were not covered in instruction; in this case the classification is more relevant.

In Table 14 the results for the addition and subtraction algorithm objectives are reported separately for regrouping and nonregrouping problems for the numbers 0-99 and 0-999. A further breakdown of the data by problem type (e.g., 3-digit + 3-digit with regrouping in tens only) will be given later. The S-6 data for the sample of items administered at that time are also presented in Table 14 but the reader is cautioned that the sample did not precisely parallel the actual test; that is, while one-third of the items at S-6 for both 2-digit nonregrouping and regrouping objectives contained 2-digit $\pm$ 1-digit numbers, at A-1 and A-2 there were no items of this type for nonregrouping and one-half of the regrouping items were 2-digit $\pm$ 1-digit. Also, at S-6 about one-third of all 3-digit items (regrouping and nonregrouping) involved 3-digit $\pm$ 2-digit numbers while A-1 and A-2 there were no items of this type. Nonetheless, the S-6 data offer a reasonable estimate of baseline performance. The A-1 data can also be considered baseline insofar as the formal algorithms are concerned since the first algorithm was not covered until A-2.

The results for 2-digit numbers were very clearly related to instruction. Also, even though 3-digit numbers per se and computation with

3-digit numbers were not covered during the spring semester, the data for these problems paralleled the 2-digit data for most objectives and suggested that students readily generalized from instruction on 2-digit numbers to 3-digit numbers.

After the introduction of the numbers 0-99 and computation without regrouping during A-1, the score for the 2-digit addition without regrouping objective was at mastery level (90.4%) and scores for the 3-digit addition without regrouping and 2-digit subtraction without regrouping objectives approached mastery (respectively, 86.5% and 86.2%). The 3-digit nonregrouping subtraction objective also had a relatively high score (74.1%). At A-2 the status on these four objectives was maintained.

For the 2-digit addition regrouping objectives (except for 3 addends), S-6 and A-1 scores demonstrated some familiarity with the algorithms prior to instruction. After the introduction of the addition algorithm at A-2, dramatic improvement occurred on the 2-digit regrouping objective from the S-6 and A-1 status (34.1%, 30.5%) to 72.3% at A-2. Again there apparently was transfer to the 3-digit regrouping objective for which scores increased from 14.6% and 15.4% to 41.5%. There was also some overall growth from S-4 to A-2 on the problems with three addends. No instruction on the subtraction algorithm was carried out during this period and the scores mirrored this by remaining virtually constant for both 2-digit and 3-digit numbers at the three test times.

In summary, progress on both algorithmic and nonalgorithmic computation for both addition and subtraction of 2-digit numbers was con-

sistent with instruction. For nonregrouping problems for both operations, and for addition problems requiring the use of the algorithm, skills were generalized to 3-digit numbers.

In Table 15 the results for all addition and subtraction problem types are reported separately. Also, this table presents data on proportion of items attempted for each item type and the proportion correct of those attempted. (S-6 data are not included because the number of items was so small and virtually all items were completed; also, the items were administered in a different order and the item types were not entirely equivalent.) The 2-digit problem types were administered in the order in which they appear in the table; similarly the 3-digit problems were given in that order. However, the 3-digit nonregrouping problems appeared between the 2-digit nonregrouping and the 2-digit ± 1-digit problems on the tests themselves (see Table 6).

Examination of the percent correct columns in Table 15 reveals some interesting results about the relative difficulty of item types. First, it indicates that 2-digit ± 1-digit with regrouping problems for both addition and subtraction are somewhat more difficult than the standard 2-digit ± 2-digit regrouping problems, even though the problems involving 1-digit numbers could conceivably have been solved simply by counting. Secondly, it appears that the generalization from 2-digit to 3-digit numbers after A-2 instruction on the addition algorithm is more pronounced for problems involving regrouping of tens than for those with regrouping of ones since the tens problems were easier. Very few subtraction regrouping problems were completed correctly so it is not

Table 15

Relationship Between Items Attempted and Items Answered Correctly

for the Algorithm Timed Tests

Type of Problem	% Correct of Total		% Attempted of Total		% Correct of Attempts	
	A-1	A-2	A-1	A-2	A-1	A-2
Addition						
2-digit without regrouping	90.4	94.7	97.9	97.5	92.5	96.5
2-digit + 1-digit with regrouping	21.3	63.5	81.9	86.7	27.2	72.4
2-digit with regrouping	39.7	81.0	89.0	92.6	43.1	84.4
3-digit without regrouping[a]	86.5	86.0	92.6	93.7	93.6	91.1
3-digit with regrouping in ones	18.8	41.4	78.0	82.1	22.5	50.4
3-digit with regrouping in tens	17.7	55.1	62.1	77.5	27.0	70.0
3-digit with regrouping in ones and tens	9.6	28.1	43.3	64.6	24.0	40.2
3 2-digit addends with regrouping	3.9	18.6	20.6	35.4	15.3	48.7
Subtraction						
2-digit without regrouping	86.2	81.4	96.1	95.4	88.9	84.8
2-digit - 1-digit with regrouping	2.5	2.8	81.6	79.0	2.8	3.4
2-digit with regrouping	13.1	11.9	82.6	83.2	16.1	15.3
3-digit without regrouping[a]	74.1	75.4	84.4	87.0	88.1	85.5
3-digit with regrouping in ones	2.5	1.4	67.7	63.9	3.3	2.0
3-digit with regrouping in tens	.7	.7	57.4	54.0	1.1	1.1
3-digit with regrouping in ones and tens	.7	.7	41.1	41.4	1.5	2.2
3-digit with regrouping, zero(s) in minuend	0	0	33.3	32.6	0	0

[a]In the tests themselves these items appeared just after the 2-digit without regrouping items.

Note. There were 9 items for each problem type.

possible to compare these two problem types (tens vs. ones) and in any case, it may be premature to do so prior to instruction in the algorithm. In general, the relative difficulties appeared to correspond to the predicted order, that is, the order in which the test items were administered.

A time limit of 6 minutes was established for each subtest. Therefore, scores representing percent correct for item types which occurred later in the test might have been artificially deflated if few or no students ever reached these items, or if only the less capable students reached them by hurrying through the test, perhaps by applying quick but "buggy" algorithms. Further, if only the more capable students attempted the later items, and it is assumed that the less able students might have done them correctly had they had time to try them, then the scores also might not be an accurate reflection of progress. Of course, it is possible that both the most and the least capable students attempted these problems but for different reasons.

The question is more or less moot for all 2-digit problem types (except the 3 addends) and for the 3-digit nonregrouping problems since 79% or more of these items were attempted at A-1 and A-2. For these problem types the percent correct scores probably quite adequately reflect the status of the group. This means that the aggregate data for these objectives in Table 14 can also be viewed with confidence. For the 3-digit with regrouping problem types, from 43.3% to 82.1% of the addition problems were attempted and from 32.6% to 67.7% of the subtraction problems. For some of these problem types, the data in Table 15

and Table 14 as well, may not fully represent the population but are probably a fairly accurate portrayal, especially if we assume that usually the more capable rather than the less capable students moved through the test faster and that the less capable students would not have done well on the later items.

It was conjectured that prior to addition algorithm instruction in A-2 students as a whole might complete a greater number of problems less accurately than after instruction when they might be expected to complete fewer problems more accurately. Although it may be that some individual students' progress followed this pattern, on the whole this hypothesis does not seem to be supported by the data in Table 15. That is, there was improvement both in accuracy and quantity for addition regrouping problems from A-1 to A-2.

Conclusion

In general, the results for the A-1 and A-2 test times reflected the instructional program. That is, there was marked improvement on the various objectives associated with the use of the addition algorithm with 2-digit numbers and with computation not involving regrouping for both addition and subtraction of 2-digit numbers. This pattern of growth extended to the problem-solving 0-99 objectives, and even to computation with 3-digit numbers on which there had been no instruction whatsoever.

Instruction was set in the verbal problem context and this was reflected by progress on two of the three sentence-writing 0-99 objec-

tives not previously mastered, the two missing addend subtraction objectives as assessed in the multiple-choice test mode. However, status in the free-response mode for these objectives declined in one case and in the other improved only slightly. Progress demonstrated was not to mastery level in either mode. No improvement was shown for the comparison objective, the third sentence-writing 0-99 objective not previously mastered.

For the sentence-writing 0-20, problem solving 0-20, and recall objectives not included in instruction during this period, little overall or consistent progress occurred. On the whole scores for these objectives which already were mastered were maintained at mastery level but for those which were not, there tended to be some overall decline from S-6 to A-2. The prerequisite objectives for the numbers 0-99 were in three of four cases mastered prior to the algorithm topics and there was little change thereafter.

References

Anick, C. M., Buchanan, A. E., Carpenter, T. P., Moser, J. M., & Steinberg, R. M. Results from first and second individual interviews (February and May 1980) of the second pahse of the longitudinal study (Working Paper No. 310). Madison: Wisconsin Center for Education Research, 1981.

Anick, C. M., & Moser, J. M. Results from sixth individual interview (May 1980), coordinated study #1 (Working Paper No. 300). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980.

Buchanan, A. E., & Romberg, T. A. Data collection procedures and descriptive statistics for the grade two (fall) achievement monitoring tests (S-4, S-5, and S-6), coordinated study #1 (Working Paper No. 319). Madison: Wisconsin Center for Education Research, 1982. (a)

Buchanan, A. E., & Romberg, T. A. Instrumentation for the achievement monitoring component of coordinated study #1 (Working Paper No. 322). Madison: Wisconsin Center for Education Research, 1982. (b)

Kouba, V. L., & Moser, J. M. Results from fifth individual interview (January 1980), coordinated study #1 (Working Paper No. 293). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980.

Nelson, L. R. LERTAP. University of Otago, Duneden, New Zealand, 1974.

Romberg, T. A. Four studies on aspects of assessing computational performance (Technical Report No. 297). Madison: Wisconsin Research and Development Center for Cognitive Learning, 1975.

Romberg, T. A., & Braswell, J. Achievement monitoring via item sampling: A practical data gathering procedure for formative evaluation. Journal for Research in Mathematics Education, 1973, 4, 267-270.

Romberg, T. A., Harvey, J. G., Moser, J. M., & Montgomery, M. E. Developing mathematical processes. Chicago: Rand McNally & Co., 1974.

Appendix A

ADMINISTRATOR'S MANUALS AND STUDENT TESTS

FORMS U, V, W

U

Directions for Administering Achievement Monitoring Test U

Coordinated Study #1 & #2

General Directions

Reading the Test. The first part of this test is in multiple choice format and is read aloud to the children. Read the questions exactly as they are printed in the directions; do not paraphrase. Each question is read twice--or the key phrases are repeated after the original question is read. Read the questions at a conversational pace. The second part of the test involves verbal problems for which the child must write, but not solve, a number sentence. Again, you will read the number story twice. The third part of the test is timed and assesses the child's speed and accuracy using the addition and subtraction algorithms. The fourth segment, the basic facts speed test, is administered via tape.

Since many children will not know how to do the majority of the test, especially at the beginning of the year, they will no doubt want to ask questions or want you to repeat items yet again. Please do not allow this--instead, ask them to answer "as best they can" or to mark the "puzzled face" to show they have "not learned this yet." Note also that reading the answers to the children is not permitted.

Since this is a group-administered test, verbal exchanges with individual children can be distracting and interfering--try to establish a policy of not talking and not allowing the children to talk in between questions.

Should the above directions seem unnecessarily stringent, please realize that we are attempting to measure change over time and that we have very few questions on which to base this measurement. The children will take the other forms of this same test at 6 week intervals and then they will repeat the three forms; hopefully each time they will be able to answer the questions more successfully.

Make sure the children mark only one box and that they mark at least one box. Encourage them to use the "puzzled face" by reminding them that this response means "I haven't learned this (how to do this) yet."

Pacing the Test. Try to keep the test moving. Expecially for the number story and algorithm problems it may take a "long" time for the children to figure out an answer. As a rule of thumb, allow the group to work on each question until only one or two children are still working. At that point, if necessary, suggest that anyone still working mark the "puzzled face" box. Then just go on to the next question without waiting longer. The second part of the test, sentence writing, may go slowly. Remind the children

not to solve the problem. The third part of the test is timed and must be administered accordingly.

The last section, the taped basic facts, is a speed test. Once the tape is started, it will not be stopped.

Estimated Administration Times

Part 1 10 min.
Part 2 5 min.
Part 3 15 min.
Part 4 5 min.

Preparations for Testing

The children will need two pencils with erasers. They will not need scratch paper for this test, since they will write in the "arrow" space. The children's names have been written on the tests in advance; distribute the tests, making sure each child has his/her own test.

Specific Directions

SAY: Today we are going to do some work with numbers in this booklet. You learned how to do some parts of the work last year in first grade. You will learn how to do more of the work this year in second grade. We don't expect you to know how to do all of the work today. We will come back again and again while you are in second grade . . . each time you will have learned how to do more of the work.

Find your name on the line. Look at the big box with an X in it--you will answer the questions today by making a big X like this one.

EXAMPLE A Now find row A. I am going to ask you a question. You will answer by making a big X in one of the boxes. If you haven't learned about the answer yet, make an X in the last box, the one with the puzzled face. [*Pause.*]

Which box has a circle cut into 4 pieces? Make an X on the box with a circle cut into four pieces. [*Pause.*] If you haven't learned this yet, make an X on the box with the puzzled face. [*Check to see that the children mark only one box in the row.*]

EXAMPLE B Look at the bats and balls in the arrow. Are there more bats, more balls, or the same number? Make an X on the box that tells whether there are more bats, more balls, or the same number.

Now turn to the next page and fold your booklet.

[Note: Starting with row C, do not assist the children with the test, except to make sure they are marking only one box . . . and at least one box.]

C Find row C. Look at the apples in the arrow. Make an X in the box that tells how many apples there are ... how many apples there are. [*Pause.*] Remember, if you haven't learned about this yet, mark the puzzled face.

D Row D. Look at the number in the arrow. Make an X in the box which has that many marbles in it ... that many marbles in it.

E Row E. I am going to read a number story about pencils. I will read the story twice. Listen both times before you mark a box. John had 12 pencils. He gave 7 pencils to Tim. How many pencils did John have left? [*Repeat. Allow time for the children to figure out their answers to rows E-H.*]

F Row F. This number story is about collections of cans. For this story, you may write on the paper if you want to. Debbie has 32 cans in her collection. Her brother Bob has 56 cans. How many more cans does Bob have than Debbie? [*Repeat and give "puzzled face" reminder, if necessary, to move the test along. Also remind them to make an X on their answer, if necessary.*]

G Row G. This number story is about bricks. Mr. Brown needs 11 bricks. He has 8 bricks already. How many more bricks should he get? [*Repeat.*]

H Row H. This number story is about books. For this story, you may write on the paper if you want to. The library had 54 books about animals. Then the librarian bought 18 more animal books. How many animal books does the library have now? [*Repeat, use "puzzled face" and "make an X" reminders as necessary.*]

Turn to the next page.

I Row I. Look at the numbers in the arrow. They are in order from smallest to largest. What number goes on the line ... what number goes on the line?

J Row J. Look at the number in the arrow. Make an X on the box that has has another name for the number ... another name for the number.

K Row K. Look at the number sentences. One of the number sentences tells how to find the answer for this story about cards. After I read the story, make an X on the number sentence that tells how to find the answer. Bill has 4 football cards. He also has 9 baseball cards. How many cards does Bill have altogether? [*Repeat.*]

L Row L. This number story is about candies. Make an X on the number sentence that tells how to find the answer. Kathy had 78 candies. She gave 35 candies to Jim. How many candies did Kathy have left? [*Repeat.*]

M Row M. This number story is about a plant. A plant was 8 cubes tall. It grew some. Now it is 14 cubes tall. How much did it grow? [*Repeat.*]

N Row N. This number story is about trees. Mark the number sentence that tells how to find the answer. Mrs. Turner had 67 trees. 29 trees were pine trees and the rest were oak trees. How many trees were oak trees? [*Repeat.*]

Turn to the next page.

O Row O. Look at the problem in the arrow. What number is the answer ... what number is the answer? [*Mention "write on paper" reminder*]

P Row P. Look at the problem in the arrow. What number is the answer ... what number is the answer?

Now we will do some different work. I will read a number story to you. Then I want you to write a number sentence for the story. You don't need to solve the sentence. Just write the sentence the best you can without solving it. Write it on the line.

STORY A Joe has 9 whistles. His sister Debra has 15 whistles. How many more whistles does Debra have than Joe? [*Repeat.*]

STORY B Mike has 48 red leaves. He also has 26 yellow leaves. How many leaves does Mike have altogether? [*Repeat.*]

STORY C Jill has 29 nails. How many more nails does she have to put with them so she has 87 nails altogether? [*Repeat.*]

STORY D Jerry had 6 apples. His mother gave him 8 more apples. How many apples did Jerry have altogether? [*Repeat.*]

[*Give the children a short stand up-stretch-touch toes--and so on--"break" here.*]

Turn to the next page, the one that says "ADD" at the top.

Be sure you have the page that says "ADD" on it. All the problems on this page are addition problems. Each problem has a letter by it ... A, B, C, D... all the way to V, W and X. When I say "GO", start with problem A, then do B, then C, and so on until I say "STOP!" If you can't do a problem, go on to the next one. Do as many problems as you can before I say "STOP!" Ready? GO! (Allow 6 minutes) STOP! You worked very hard on these problems. You will be learning how to do them faster. (Reassure the children as you see fit.) Now turn to the page that says "SUBTRACT."

Be sure you have the page that says "SUBTRACT." All the problems on this page are subtraction. When I say "GO," start with problem A, then do B, then C... do as many as you can before I say "STOP!" Ready? GO! (Allow 6 minutes.) I could tell you tried your best on these problems. You will be learning how to do them faster.

Now turn to the last page.

The work on this page is different. I want to see how quickly you can think of the answers for addition and subtraction problems.

I am going to play a tape--the voice on the tape will say problems, like this: [*Play the four sample problems 2 + 8, 5 + 6, 7 + 4, 8 + 3.*] The problems will go very quickly, even faster than when you were in first grade. Today you probably will not know very many answers, but when I come back and we do these problems again, you will know more. Don't feel bad if you don't know the answers today.

We will start with the row of boxes at the top of the page--the ones with capital letters A, B, C .... The voice on the tape will tell you where to write your answers. Do your best to keep up with the voice. Get your pencil ready. [*Start tape.*]

Script on Tape: Look at the row of boxes at the top of the page. Find box A. I am going to say problems like 5 + 4. The answer for 5 + 4 is 9. So there is a 9 in box A. Find Box B. What is 7 + 1? 7 + 1 is 8. You write an 8 in box B.

[*10 second pause; make sure the children are working on the top row.*]

Now I am going to say problems for all the rest of the boxes in the top row. I will not stop, so write your answers quickly. If you can't think of an answer, just leave the box empty. Ready?

Form U

Box C 1 + 5

Box D 3 + 2

Box E 4 + 4

Box F 3 + 6

Box G 4 + 3

Box H 6 + 2

Box I 5 + 8

Box J 6 + 9

Box K 9 + 3

Box L 5 + 7

Box M 8 + 9

Box N 3 + 8

Stop working. You may rest for a moment...then we will work on the bottom row.

[*10 second pause*]

Ready to listen again? Look at the bottom row of boxes. Find Box A. This time I am going to say problems like 9 - 6. The answer for 9 - 6 is 3. So there is a 3 in box A. Find box B. What is 4 - 2? 4 - 2 is 2. You write a 2 in box B.

[*10 second pause--make sure the children are in the bottom row.*]

Now I am going to say problems for the rest of the boxes. I will not stop, so write your answers quickly. If you can't think of an answer, leave the box empty. Ready?

Form U

Box C 5 - 1

Box D 9 - 2

Box E 8 - 7

Box F 5 - 3

Box G 7 - 6

Box H 8 - 5

Box I 14 - 7

Box J 12 - 5

Box K 11 - 8

Box L 13 - 7

Box M 12 - 9

Box N 15 - 8

Stop working. Put your pencil down.

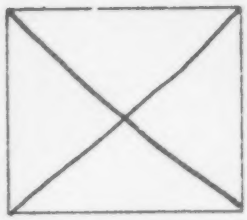
[*Stop the tape.*]

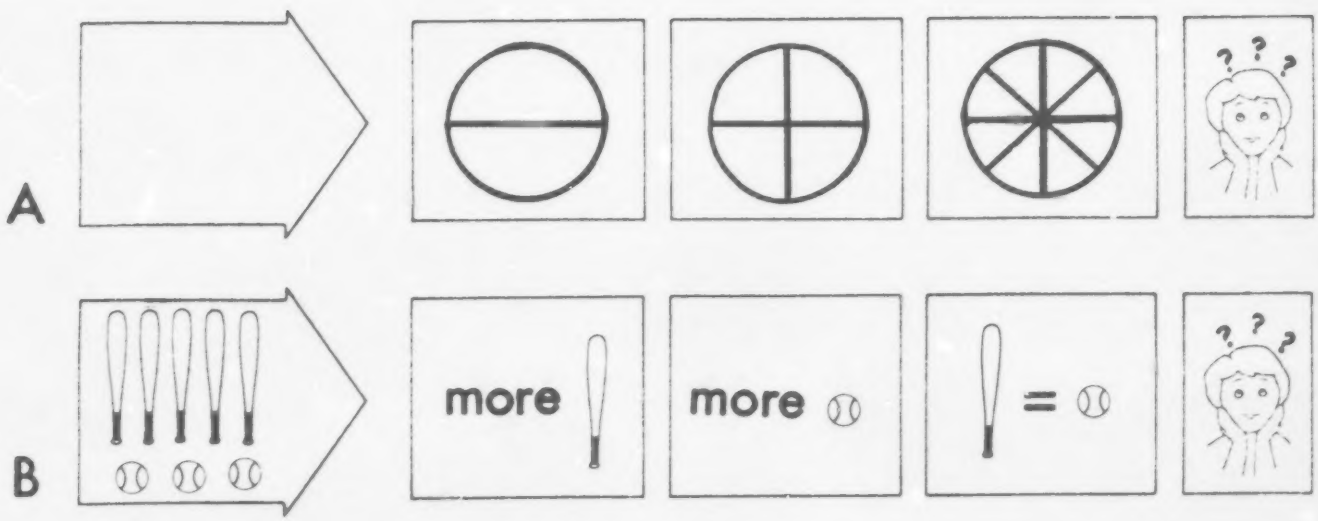
That is all the work we will do today. Remember, we will come again and you will do work like this again. Each time I come, you will be able to do more of the work.

[*Collect the booklets.*]

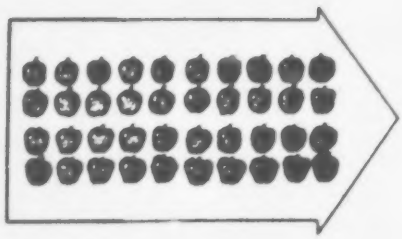
ID_ _ _ _ _ _ _ _ _

Name _____





C



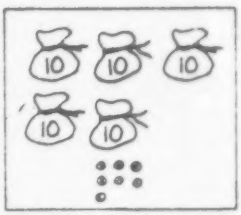
39

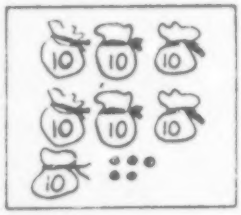
40

41

D

75





E

6

19

5

F

24

56

88

G

19

11

3

H

72

64

36

I	37 39 __ 42 45	44	38	41
J	26	20(10)+6	1(10)+16	2(10)+16
K		9−4=□	4+9=□	94=□
L		43−35=□	78+35=□	78−35=□
M		8−6=□	14+8=□	14−8=□
N		67+29=□	67−29=□	67+67=□

74

O

$$\begin{array}{r} 29 \\ +\,64 \\ \hline \end{array}$$

83	93	813	

P

$$\begin{array}{r} 67 \\ -\,42 \\ \hline \end{array}$$

32	29	25	

A

B

C

D

Add

U

75

A. 43 + 25

B. 14 + 84

C. 52 + 45

D. 614 + 384

E. 132 + 551

F. 503 + 293

G. 56 + 6

H. 29 + 8

I. 6 + 85

J. 38 + 45

K. 29 + 32

L. 98 + 72

M. 167 + 426

N. 727 + 213

O. 409 + 383

P. 155 + 792

Q. 671 + 176

R. 334 + 484

S. 479 + 479

T. 338 + 595

U. 864 + 658

V. 59 49 + 37

W. 21 33 + 59

X. 86 27 + 98

Subtract

A. $87 - 51$

B. $79 - 43$

C. $98 - 25$

D. $915 - 411$

E. $293 - 140$

F. $868 - 443$

G. $53 - 9$

H. $34 - 6$

I. $67 - 8$

J. $70 - 39$

K. $53 - 34$

L. $83 - 27$

M. $864 - 225$

N. $774 - 529$

O. $952 - 843$

P. $614 - 384$

Q. $929 - 536$

R. $639 - 243$

S. $824 - 628$

T. $942 - 595$

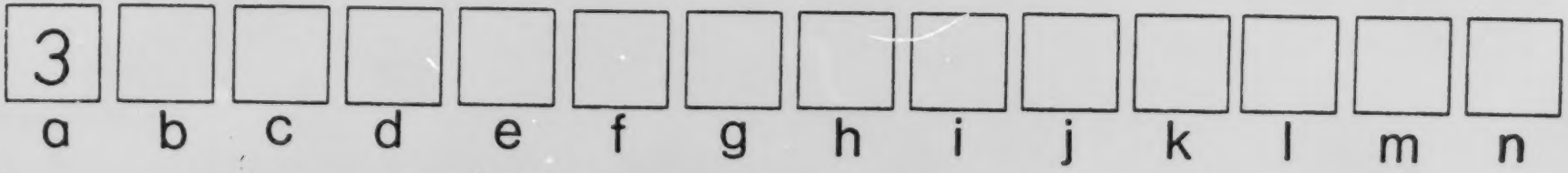
U. $328 - 169$

V. $710 - 469$

W. $803 - 427$

X. $600 - 212$

9
A B C D E F G H I J K L M N


3
a b c d e f g h i j k l m n

V

Directions for Administering Achievement Monitoring Test V

Coordinated Study #1 & #2

General Directions

Reading the Test. The first part of this test is in multiple choice format and is read aloud to the children. Read the questions exactly as they are printed in the directions; do not paraphrase. Each question is read twice--or the key phrases are repeated after the original question is read. Read the questions at a conversational pace. The second part of the test involves verbal problems for which the child must write, but not solve, a number sentence. Again, you will read the number story twice. The third part of the test is timed and assesses the child's speed and accuracy using the addition and subtraction algorithms. The fourth segment, the basic facts speed test, is administered via tape.

Since many children will not know how to do the majority of the test, especially at the beginning of the year, they will no doubt want to ask questions or want you to repeat items yet again. Please do not allow this--instead, ask them to answer "as best they can" or to mark the "puzzled face" to show they have "not learned this yet." Note also that reading the answers to the children is not permitted.

Since this is a group-administered test, verbal exchanges with individual children can be distracting and interfering--try to establish a policy of not talking and not allowing the children to talk in between questions.

Should the above directions seem unnecessarily stringent, please realize that we are attempting to measure change over time and that we have very few questions on which to base this measurement. The children will take the other forms of this same test at 6 week intervals and then they will repeat the three forms; hopefully each time they will be able to answer the questions more successfully.

Make sure the children mark only one box and that they mark at least one box. Encourage them to use the "puzzled face" by reminding them that this response means "I haven't learned this (how to do this) yet."

Pacing the Test. Try to keep the test moving. Expecially for the number story and algorithm problems it may take a "long" time for the children to figure out an answer. As a rule of thumb, allow the group to work on each question until only one or two children are still working. At that point, if necessary, suggest that anyone still working mark the "puzzled face" box. Then just go on to the next question without waiting longer. The second part of the test, sentence writing, may go slowly. Remind the children

not to solve the problem. The third part of the test is timed and must be administered accordingly.

The last section, the taped basic facts, is a speed test. Once the tape is started, it will not be stopped.

Estimated Administration Times

Part 1 10 min.
Part 2 5 min.
Part 3 15 min.
Part 4 5 min.

Preparations for Testing

The children will need two pencils with erasers. They will not need scratch paper for this test, since they will write in the "arrow" space. The children's names have been written on the tests in advance; distribute the tests, making sure each child has his/her own test.

Specific Directions

SAY: Today we are going to do some work with numbers in this booklet. You learned how to do some parts of the work last year in first grade. You will learn how to do more of the work this year in second grade. We don't expect you to know how to do all of the work today. We will come back again and again while you are in second grade . . . each time you will have learned how to do more of the work.

Find your name on the line. Look at the big box with an X in it--you will answer the questions today by making a big X like this one.

EXAMPLE A Now find row A. I am going to ask you a question. You will answer by making a big X in one of the boxes. If you haven't learned about the answer yet, make an X in the last box, the one with the puzzled face. [*Pause.*]

Which box has a triangle in it? Make an X on the box with a triangle in it. [*Pause*] If you haven't learned this yet, make an X on the box with the puzzled face. [*Check to see that the children mark only one box in the row.*]

EXAMPLE B Find Row B. Look at the numbers in the arrow. What number comes next? Make an X on the number that comes next.

Now turn to the next page and fold your booklet.

[*Note: Starting with row C, do not assist the children with the test, except to make sure they are marking only one box ... and at least one box.*]

C Row C. Look at the sticks in the arrow. Make an X on the box that tells how many sticks there are ... the box that tells how many sticks there are. [*Pause.*] Remember, if you haven't learned about this yet, mark the puzzled face.

D Row D. Make an X on the box that has 24 cubes in it ... 24 cubes in it.

E Row E. I am going to read a number story about toy airplanes. I will read the story twice. Listen both times before you mark a box. David has 9 toy airplanes. His sister Nancy has 13 toy airplanes. How many more toy airplanes does Nancy have than David? [*Repeat. Allow time for the children to figure out their answers to rows E-H.*]

F Row F. This number story is about bottle caps. For this story you may write on the paper if you want to. Tom has 24 old bottle caps. He also has 57 new bottle caps. How many bottle caps does Tom have altogether? [*Repeat. If necessary, remind the children to "make an X" on their answer. Also, use the "puzzled face" reminder as necessary.*]

G Row G. This number story is about shells. 17 shells are in a box. Some shells are little. 8 are big. How many little shells are in the box? [*Repeat.*]

H Row H. This number story is about soccer. For this story you may write on the paper if you want to. There were some soccer players on the field. 23 more players came. Now there are 35 players on the field. How many players were on the field at first? [*Repeat. Use "puzzled face" and "make an X" reminders as necessary.*]

Turn to the next page.

I Row I. Which box shows the numbers in order from smallest to largest ... in order from smallest to largest?

J Row J. Look at the little squares in the arrow. Make an X on the box that tells how many squares there are...how many squares there are.

K Row K. Look at the number sentences. One of the number sentences tells how to find the answer for this story about hats. After I read the story, make an X on the number sentence that tells how to find the answer. Karla had 15 hats. She gave 9 hats to Steve. How many hats did Karla have left? [*Repeat.*]

L Row L. This number story is about stickers. Make an X on the number sentence that tells <u>how</u> to find the answer. Sarah has 28 stickers. Her brother Ricky has 34 stickers. How many more stickers does Ricky have than Sarah? [*Repeat.*]

M Row M. This number story is about things to drink. There are 11 glasses on the table. 5 have orange juice in them. The rest have milk in them. How many glasses have milk in them? [*Repeat.*]

N Row N. This number story is about children swimming. There were 46 children swimming in the pool. 27 more children jumped into the pool. How many children were in the pool then? [*Repeat.*]

Turn to the next page.

O Row O. Look at the problem in the arrow. What number is the answer ... what number is the answer? [*Mention "write on paper" reminder*]

P Row P. Look at the problem in the arrow. What number is the answer ... what number is the answer?

Now we will do some different work. I will read a number story to you. Then I want you to write a number sentence for the story. You don't need to solve the sentence. Just write the sentence the best you can without solving it. Write it on the line.

STORY A Judy has 4 chocolate cupcakes. She also has 7 white cupcakes. How many cupcakes does Judy have altogether? [*Repeat.*]

STORY B Steve had 65 pennies. He gave 36 of them to Laura. How many pennies did Steve have left? [*Repeat.*]

STORY C There are 86 marbles in a jar. 54 are big and the rest are little. How many little marbles are in the jar? [*Repeat*]

STORY D Adam has 7 puzzles. How many more puzzles does he have to put with them so he has 12 puzzles altogether? [*Repeat.*]

[*Give the children a short stand up-stretch-touch toes--and so on--"break" here.*]

Turn to the next page, the one that says "ADD" at the top.

Be sure you have the page that says "ADD" on it. All the problems on this page are addition problems. Each problem has a letter by it ... A, B, C, D... all the way to V, W and X. When I say "GO", start with problem A, then do B, then C, and so on until I say "STOP!" If you can't do a problem, go on to the next one. Do as many problems as you can before I say "STOP!" Ready? GO! (Allow 6 minutes) STOP! You worked very hard on these problems. You will be learning how to do them faster. (Reassure the children as you see fit.) Now turn to the page that says "SUBTRACT."

Be sure you have the page that says "SUBTRACT." All the problems on this page are subtraction. When I say "GO," start with problem A, then do B, then C... do as many as you can before I say "STOP!" Ready? GO! (Allow 6 minutes.) I could tell you tried your best on these problems. You will be learning how to do them faster.

Now turn to the last page.

The work on this page is different. I want to see how quickly you can think of the answers for addition and subtraction problems.

I am going to play a tape--the voice on the tape will say problems, like this: [*Play the four sample problems 2 + 8, 5 + 6, 7 + 4, 8 + 3.*] The problems will go very quickly, even faster than when you were in first grade. Today you probably will not know very many answers, but when I come back and we do these problems again, you will know more. Don't feel bad if you don't know the answers today.

We will start with the row of boxes at the top of the page--the ones with capital letters A, B, C .... The voice on the tape will tell you where to write your answers. Do your best to keep up with the voice. Get your pencil ready. [*Start tape.*]

Script on Tape: Look at the row of boxes at the top of the page. Find box A. I am going to say problems like 5 + 4. The answer for 5 + 4 is 9. So there is a 9 in box A. Find Box B. What is 7 + 1? 7 + 1 is 8. You write an 8 in box B.

[*10 second pause; make sure the children are working on the top row.*]

Now I am going to say problems for all the rest of the boxes in the top row. I will not stop, so write your answers quickly. If you can't think of an answer, just leave the box empty. Ready?

Form V

Box C 3 + 1

Box D 2 + 5

Box E 1 + 6

Box F 7 + 2

Box G 2 + 6

Box H 3 + 5

Box I 4 + 8

Box J 3 + 7

Box K 5 + 9

Box L 6 + 8

Box M 8 + 7

Box N 4 + 9

Stop working. You may rest for a moment...then we will work on the bottom row.

[*10 second pause*]

Ready to listen again? Look at the bottom row of boxes. Find Box A. This time I am going to say problems like 9 - 6. The answer for 9 - 6 is 3. So there is a 3 in box A. Find box B. What is 4 - 2? 4 - 2 is 2. You write a 2 in box B.

[*10 second pause--make sure the children are in the bottom row.*]

Now I am going to say problems for the rest of the boxes. I will not stop, so write your answers quickly. If you can't think of an answer, leave the box empty. Ready?

Form V

Box C 7 - 1

Box D 8 - 4

Box E 9 - 5

Box F 7 - 4

Box G 8 - 6

Box H 4 - 3

Box I 11 - 2

Box J 13 - 8

Box K 12 - 7

Box L 15 - 9

Box M 10 - 2

Box N 16 - 7

Stop working. Put your pencil down.

[*Stop the tape.*]

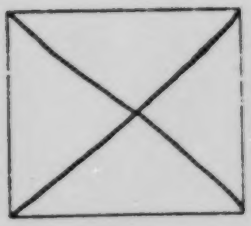
That is all the work we will do today. Remember, we will come again and you will do work like this again. Each time I come, you will be able to do more of the work.

[*Collect the booklets.*]

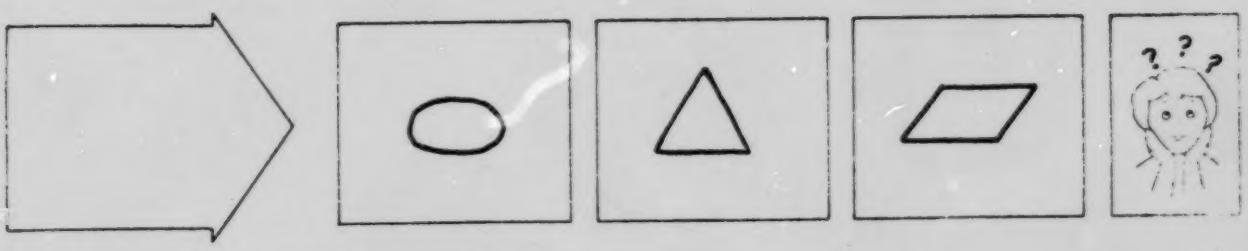
84

ID_ _ _ _ _ _ _ _ _

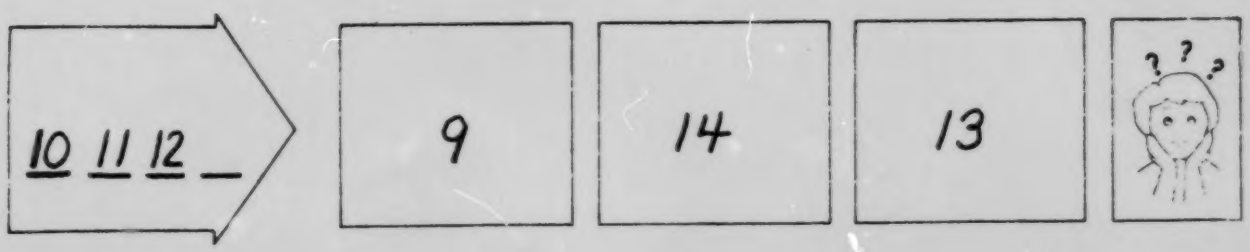
Name _____



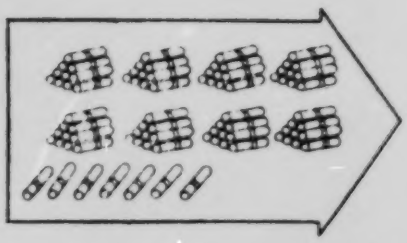
A



B

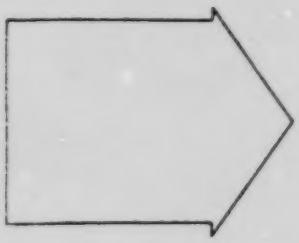


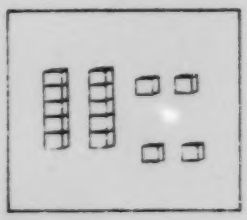
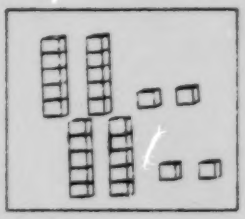
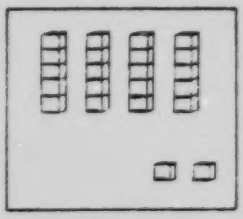
C



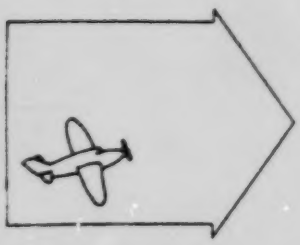
87	97	15	

D



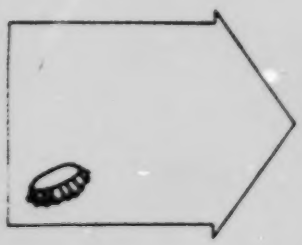
			

E



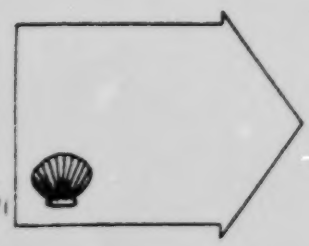
4	13	5	

F



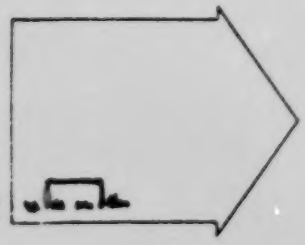
33	73	81	

G



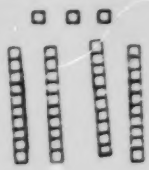
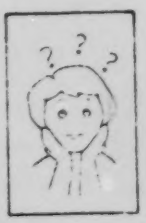
25	17	9	

H



12	23	58	

86

I		92 98 89	37 57 63	28 82 36	
J		3 tens + 13 ones	3 tens + 4 ones	4 tens + 13 ones	
K		15 + 9 = ☐	15 − 9 = ☐	9 − 6 = ☐	
L		28 + 34 = ☐	34 + 6 = ☐	34 − 28 = ☐	
M		11 + 5 = ☐	11 + 6 = ☐	11 − 5 = ☐	
N		46 − 27 = ☐	46 + 27 = ☐	61 + 27 = ☐	

O

$$\begin{array}{r} 16 \\ +44 \\ \hline \end{array}$$

60 | 50 | 61 |

P

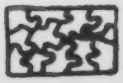
$$\begin{array}{r} 85 \\ -59 \\ \hline \end{array}$$

34 | 44 | 26 |

A _____

B _____

C _____

D  _____

Add

v

88

A. 53 + 34

B. 30 + 21

C. 27 + 62

D. 503 + 293

E. 265 + 314

F. 332 + 246

G. 7 + 56

H. 68 + 8

I. 79 + 7

J. 29 + 64

K. 45 + 28

L. 77 + 95

M. 426 + 458

N. 239 + 653

O. 115 + 875

P. 174 + 642

Q. 583 + 241

R. 186 + 570

S. 263 + 459

T. 359 + 265

U. 767 + 434

V. 19 64 + 58

W. 67 25 + 22

X. 58 98 + 85

Subtract

A. $\begin{array}{r} 67 \\ -\ 42 \\ \hline \end{array}$

B. $\begin{array}{r} 56 \\ -\ 25 \\ \hline \end{array}$

C. $\begin{array}{r} 88 \\ -\ 76 \\ \hline \end{array}$

D. $\begin{array}{r} 698 \\ -\ 457 \\ \hline \end{array}$

E. $\begin{array}{r} 482 \\ -\ 231 \\ \hline \end{array}$

F. $\begin{array}{r} 985 \\ -\ 265 \\ \hline \end{array}$

G. $\begin{array}{r} 32 \\ -\ 5 \\ \hline \end{array}$

H. $\begin{array}{r} 74 \\ -\ 8 \\ \hline \end{array}$

I. $\begin{array}{r} 61 \\ -\ 5 \\ \hline \end{array}$

J. $\begin{array}{r} 72 \\ -\ 28 \\ \hline \end{array}$

K. $\begin{array}{r} 83 \\ -\ 67 \\ \hline \end{array}$

L. $\begin{array}{r} 85 \\ -\ 59 \\ \hline \end{array}$

M. $\begin{array}{r} 256 \\ -\ 138 \\ \hline \end{array}$

N. $\begin{array}{r} 388 \\ -\ 269 \\ \hline \end{array}$

O. $\begin{array}{r} 913 \\ -\ 408 \\ \hline \end{array}$

P. $\begin{array}{r} 846 \\ -\ 393 \\ \hline \end{array}$

Q. $\begin{array}{r} 929 \\ -\ 743 \\ \hline \end{array}$

R. $\begin{array}{r} 726 \\ -\ 186 \\ \hline \end{array}$

S. $\begin{array}{r} 623 \\ -\ 334 \\ \hline \end{array}$

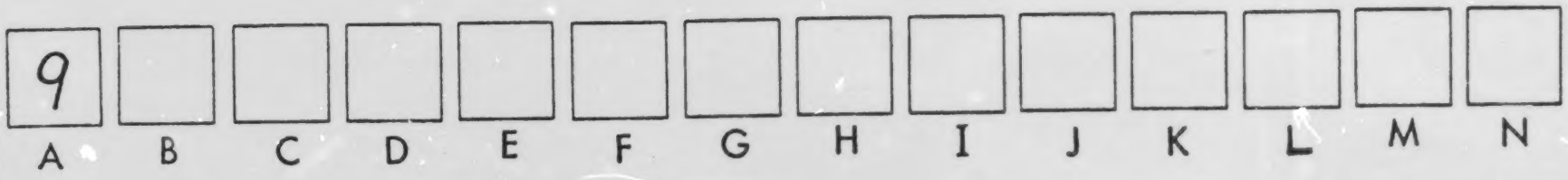
T. $\begin{array}{r} 872 \\ -\ 586 \\ \hline \end{array}$

U. $\begin{array}{r} 436 \\ -\ 337 \\ \hline \end{array}$

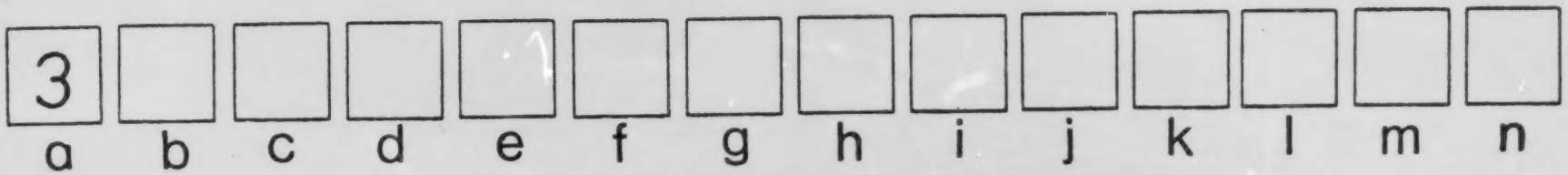
V. $\begin{array}{r} 730 \\ -\ 438 \\ \hline \end{array}$

W. $\begin{array}{r} 504 \\ -\ 227 \\ \hline \end{array}$

X. $\begin{array}{r} 600 \\ -\ 481 \\ \hline \end{array}$



90



113

112

Directions for Administering Achievement Monitoring Test W

Coordinated Study #1 & #2

General Directions

Reading the Test. The first part of this test is in multiple choice format and is read aloud to the children. Read the questions exactly as they are printed in the directions; do not paraphrase. Each question is read twice--or the key phrases are repeated after the original question is read. Read the questions at a conversational pace. The second part of the test involves verbal problems for which the child must write, but not solve, a number sentence. Again, you will read the number story twice. The third part of the test is timed and assesses the child's speed and accuracy using the addition and subtraction algorithms. The fourth segment, the basic facts speed test, is administered via tape.

Since many children will not know how to do the majority of the test, especially at the beginning of the year, they will no doubt want to ask questions or want you to repeat items yet again. Please do not allow this--instead, ask them to answer "as best they can" or to mark the "puzzled face" to show they have "not learned this yet." Note also that reading the answers to the children is not permitted.

Since this is a group-administered test, verbal exchanges with individual children can be distracting and interfering--try to establish a policy of not talking and not allowing the children to talk in between questions.

Should the above directions seem unnecessarily stringent, please realize that we are attempting to measure change over time and that we have very few questions on which to base this measurement. The children will take the other forms of this same test at 6 week intervals and then they will repeat the three forms; hopefully each time they will be able to answer the questions more successfully.

Make sure the children mark only one box and that they mark at least one box. Encourage them to use the "puzzled face" by reminding them that this response means "I haven't learned this (how to do this) yet."

Pacing the Test. Try to keep the test moving. Expecially for the number story and algorithm problems it may take a "long" time for the children to figure out an answer. As a rule of thumb, allow the group to work on each question until only one or two children are still working. At that point, if necessary, suggest that anyone still working mark the "puzzled face" box. Then just go on to the next question without waiting longer. The second part of the test, sentence writing, may go slowly. Remind the children

not to solve the problem. The third part of the test is timed and must be administered accordingly.

The last section, the taped basic facts, is a speed test. Once the tape is started, it will not be stopped.

Estimated Administration Times

Part 1 10 min.
Part 2 5 min.
Part 3 15 min.
Part 4 5 min.

Preparations for Testing

The children will need two pencils with erasers. They will not need scratch paper for this test, since they will write in the "arrow" space. The children's names have been written on the tests in advance; distribute the tests, making sure each child has his/her own test.

Specific Directions

SAY: Today we are going to do some work with numbers in this booklet. You learned how to do some parts of the work last year in first grade. You will learn how to do more of the work this year in second grade. We don't expect you to know how to do all of the work today. We will come back again and again while you are in second grade . . . each time you will have learned how to do more of the work.

Find your name on the line. Look at the big box with an X in it--you will answer the questions today by making a big X like this one.

EXAMPLE A Now find row A. I am going to ask you a question. You will answer by making a big X in one of the boxes. If you haven't learned about the answer yet, make an X in the last box, the one with the puzzled face. [*Pause.*]

Look at the boxes with the black and white dots in them. Which box has the most black dots? Make an X on the box with the most black dots. [*Pause*] If you haven't learned this yet, make an X on the box with the puzzled face. [*Check to see that the children mark only one box in the row.*]

EXAMPLE B Find Row B. Look at the numbers in the arrow. Which box has the numbers in order from largest to smallest? Make an X on the box with the numbers in order from largest to smallest.

Now turn to the next page and fold your booklet.

[*Note: Starting with row C, do not assist the children with the test except to make sure they are marking only one box and at least one box.*]

C Row C. Make an X on the box that has a seventy-four in it ... make an X on the box that has a seventy-four in it. [*Pause.*] If you haven't learned about this yet, mark the puzzled face.

D Row D. Look at the number in the arrow. Make an X on the box that has that many stars in it ... make an X on the box that has that many stars in it.

E Row E. I am going to read a number story about fish. I will read the story twice. Listen both times before you mark a box. Judy has 6 little fish. She also has 9 big fish. How many fish does Judy have altogether? [*Repeat. Allow time for the children to figure out their answers to rows E-H.*]

F Row F. This number story is about comics. For <u>this</u> story, you may write on the paper if you want to. Paul had 43 comics. He gave 28 comics to Carol. How many comics did Paul have left? [*Repeat and give "puzzled face" reminder if necessary to move the test along. You also might need to remind children to "make an X" on their answer.*]

G Row G. This number story is about tickets. First Julie bought 7 tickets to ride on the roller coaster. Then she bought 4 more tickets to ride on the ferris wheel. How many tickets did Julie buy? [*Repeat.*]

H Row H. This story is about a dog's leash. For <u>this</u> story you may write on the paper if you want to. The dog's leash is 75 links long. A part of the leash 47 links long is around a tree. The rest of the leash is not. How long is the part that is <u>not</u> around a tree? [*Repeat. Remind about "puzzled face" and "make an X on answer" as necessary.*]

Turn to the next page.

I Row I. Look at the three purses. Which purse has the <u>least</u> amount of money in it ... the <u>least</u> amount of money?

J Row J. Look at the numbers in the arrow. Make an X on the box that means the <u>same</u> as the numbers in the arrow...that means the same as the numbers in the arrow.

K Row K. Look at the number sentences. One of the number sentences tells <u>how</u> to find the answer for this story about keys. After I read the story, make an X on the number sentence that tells how to find the answer. Sally has 8 keys. Her brother Mike has 14 keys. How many more keys does Mike have than Sally? [*Repeat.*]

L Row L. This number story is about beads. After I read the story, make an X on the number sentence that tells <u>how</u> to find the answer. Jack has 16 red beads. He also has 56 green beads. How many beads does Jack have altogether? [*Repeat.*]

M Row M. This number story is about links. Mark the number sentence that tells how to find the answer. Patty made a chain of links. She used 3 links first. Then she used 8 more links. How many links long is her chain? [*Repeat.*]

N Row N. This number story is about marbles. On Tuesday Melinda won 31 marbles. On Wednesday she won some more marbles. She won 64 marbles altogether. How many marbles did she win on Wednesday? [*Repeat.*]

4 W

94 Turn to the next page.

O Row O. Look at the problem in the arrow. What number is the answer ... what number is the answer? [*Mention "write on paper" reminder*]

P Row P. Look at the problem in the arrow. What number is the answer ... what number is the answer?

Now we will do some different work. I will read a number story to you. Then I want you to write a number sentence for the story. You don't need to solve the sentence. Just write the sentence the best you can without solving it. Write it on the line.

STORY A Jenny had 13 balloons. She gave 9 balloons to Ben. How many balloons did Jenny have left? [*Repeat.*]

STORY B Mark has 16 crayons. His sister Pam has 58 crayons. How many more crayons does Pam have than Mark? [*Repeat.*]

STORY C Jean had 26 bottle caps. Her mother gave her 37 more bottle caps. How many bottle caps did Jean have altogether? [*Repeat.*]

STORY D There are 11 trucks in the sandbox. 8 are big and the rest are little. How many little trucks are in the sandbox? [*Repeat.*]

[*Give the children a short stand up-stretch-touch toes--and so on--"break here.*]

Turn to the next page, the one that says "ADD" at the top.

Be sure you have the page that says "ADD" on it. All the problems on this page are addition problems. Each problem has a letter by it ... A, B, C, D... all the way to V, W and X. When I say "GO", start with problem A, then do B, then C, and so on until I say "STOP!" If you can't do a problem, go on to the next one. Do as many problems as you can before I say "STOP!" Ready? GO! (Allow 6 minutes) STOP! You worked very hard on these problems. You will be learning how to do them faster. (Reassure the children as you see fit.) Now turn to the page that says "SUBTRACT."

Be sure you have the page that says "SUBTRACT." All the problems on this page are subtraction. When I say "GO," start with problem A, then do B, then C... do as many as you can before I say "STOP!" Ready? GO! (Allow 6 minutes.) I could tell you tried your best on these problems. You will be learning how to do them faster.

Now turn to the last page.

The work on this page is different. I want to see how quickly you can think of the answers for addition and subtraction problems. 95

I am going to play a tape--the voice on the tape will say problems, like this: [*Play the four sample problems 2 + 8, 5 + 6, 7 + 4, 8 + 3.*] The problems will go very quickly, even faster than when you were in first grade. Today you probably will not know very many answers, but when I come back and we do these problems again, you will know more. Don't feel bad if you don't know the answers today.

We will start with the row of boxes at the top of the page--the ones with capital letters A, B, C .... The voice on the tape will tell you where to write your answers. Do your best to keep up with the voice. Get your pencil ready. [*Start tape.*]

Script on Tape: Look at the row of boxes at the top of the page. Find box A. I am going to say problems like 5 + 4. The answer for 5 + 4 is 9. So there is a 9 in box A. Find Box B. What is 7 + 1? 7 + 1 is 8. You write an 8 in box B.

[*10 second pause; make sure the children are working on the top row.*]

Now I am going to say problems for all the rest of the boxes in the top row. I will not stop, so write answers quickly. If you can't think of an answer, just leave the box empty. Ready?

Form W

Box C 2 + 4

Box D 6 + 3

Box E 5 + 2

Box F 2 + 3

Box G 5 + 0

Box H 1 + 3

Box I 9 + 2

Box J 6 + 6

Box K 4 + 7

Box L 7 + 6

Box M 9 + 7

Box N 6 + 4

Stop working. You may rest for a moment...then we will work on the bottom row.

[*10 second pause*]

Ready to listen again? Look at the bottom row of boxes. Find Box A. This time I am going to say problems like 9 - 6. The answer for 9 - 6 is 3. So there is a 3 in box A. Find box B. What is 4 - 2? 4 - 2 is 2. You write a 2 in box B.

[*10 second pause--make sure the children are in the bottom row.*]

Now I am going to say problems for the rest of the boxes. I will not stop, so write your answers quickly. If you can't think of an answer, leave the box empty. Ready?

Form W

Box C 3 - 2

Box D 6 - 4

Box E 9 - 1

Box F 7 - 3

Box G 6 - 1

Box H 7 - 5

Box I 10 - 4

Box J 13 - 9

Box K 14 - 8

Box L 11 - 7

Box M 12 - 4

Box N 17 - 9

Stop working. Put your pencil down.

[*Stop the tape.*]

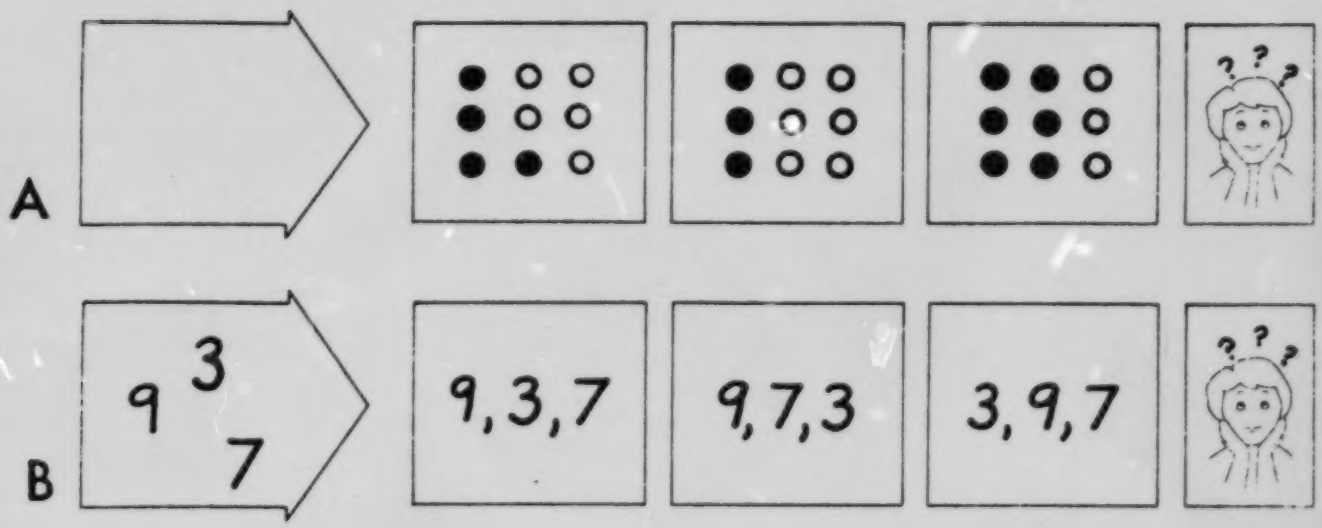
That is all the work we will do today. Remember, we will come again and you will do work like this again. Each time I come, you will be able to do more of the work.

[*Collect the booklets.*]

97 W

ID_ _ _ _ _ _ _ _

Name _____



C

	44	47	74

D

36			

E

	3	14	15

F

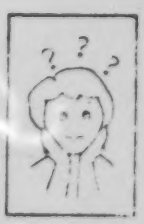
	25	15	35

G

	3	12	11

H

	28	32	112

I					
J	7(10)+18	78	718	88	
K		14+8=□	14-8=□	14+6=□	
L		72+56=□	56-16=□	16+56=□	
M		8+8=□	8-3=□	3+8=□	
N		64=□	64-31=□	31+64=□	

O

$$\begin{array}{r} {\scriptstyle 100}\,53 \\ +\,34 \\ \hline \end{array}$$

21	87	67	

P

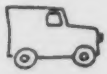
$$\begin{array}{r} 32 \\ -\,5 \\ \hline \end{array}$$

27	37	7	

A

B

C

D 

Add

W

101

A. $\begin{array}{r} 51 \\ +\ 27 \\ \hline \end{array}$

B. $\begin{array}{r} 40 \\ +\ 48 \\ \hline \end{array}$

C. $\begin{array}{r} 25 \\ +\ 22 \\ \hline \end{array}$

D. $\begin{array}{r} 362 \\ +\ 205 \\ \hline \end{array}$

E. $\begin{array}{r} 417 \\ +\ 212 \\ \hline \end{array}$

F. $\begin{array}{r} 683 \\ +\ 215 \\ \hline \end{array}$

G. $\begin{array}{r} 64 \\ +\ 7 \\ \hline \end{array}$

H. $\begin{array}{r} 6 \\ +\ 84 \\ \hline \end{array}$

I. $\begin{array}{r} 7 \\ +\ 59 \\ \hline \end{array}$

J. $\begin{array}{r} 19 \\ +\ 44 \\ \hline \end{array}$

K. $\begin{array}{r} 56 \\ +\ 34 \\ \hline \end{array}$

L. $\begin{array}{r} 59 \\ +\ 65 \\ \hline \end{array}$

M. $\begin{array}{r} 104 \\ +\ 839 \\ \hline \end{array}$

N. $\begin{array}{r} 559 \\ +\ 236 \\ \hline \end{array}$

O. $\begin{array}{r} 328 \\ +\ 349 \\ \hline \end{array}$

P. $\begin{array}{r} 431 \\ +\ 272 \\ \hline \end{array}$

Q. $\begin{array}{r} 594 \\ +\ 383 \\ \hline \end{array}$

R. $\begin{array}{r} 482 \\ +\ 436 \\ \hline \end{array}$

S. $\begin{array}{r} 347 \\ +\ 589 \\ \hline \end{array}$

T. $\begin{array}{r} 188 \\ +\ 295 \\ \hline \end{array}$

U. $\begin{array}{r} 996 \\ +\ 317 \\ \hline \end{array}$

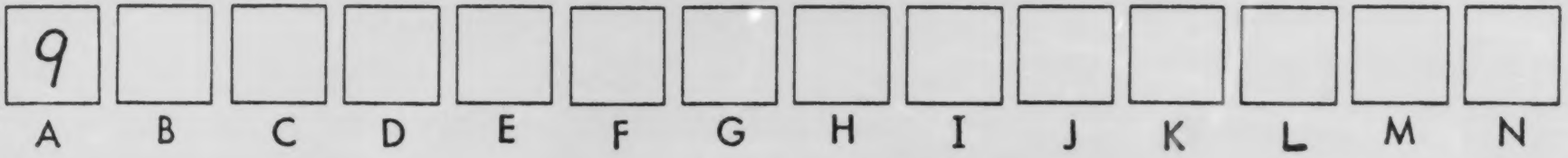
V. $\begin{array}{r} 69 \\ 34 \\ +\ 57 \\ \hline \end{array}$

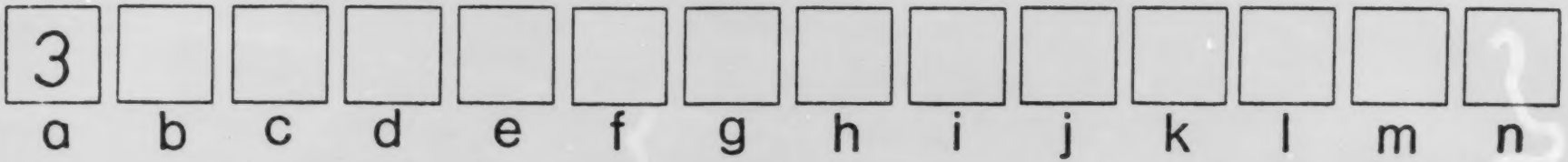
W. $\begin{array}{r} 86 \\ 54 \\ +\ 46 \\ \hline \end{array}$

X. $\begin{array}{r} 95 \\ 99 \\ +\ 78 \\ \hline \end{array}$

Subtract

A. 94 − 60	G. 63 − 4	M. 453 − 215	S. 428 − 289
B. 78 − 64	H. 95 − 7	N. 950 − 219	T. 661 − 462
C. 48 − 21	I. 77 − 8	O. 994 − 336	U. 685 − 596
D. 634 − 523	J. 31 − 15	P. 746 − 584	V. 620 − 545
E. 582 − 232	K. 77 − 29	Q. 914 − 540	W. 701 − 599
F. 998 − 676	L. 72 − 63	R. 677 − 393	X. 400 − 276





126

127

Appendix B

ITEM STATISTICS FOR FORMS U, V, W

FOR THE TOTAL POPULATION

ADMINISTRATION TIME: A1

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 16

TEST NO 1 ACHIEVEMENT MONITORING 7U — SUBTEST 1 OBJECTIVES TEST

106

ITEM NUMBER 1

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
	1	0	3	9.7		-.39	-.32	-.67	-.54		7.67	35.33	
C	2	1	23	74.2	C	.44	.37	.60	.50	C	10.87	50.09	Numerousness
	3	0	2	6.5		-.15	-.18	-.30	-.34		9.00	39.00	Writes 0-99
	4	0	3	9.7		-.14	-.09	-.24	-.15		9.33	44.00	
	TOTAL		31										

ITEM NUMBER 2

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	1	3.2		-.35	-.27	-.86	-.66		6.00	29.00	Numerousness
	2	0	0	.0		.00	.00	.00	.00		.00	.00	Represents 0-99
C	3	1	29	93.5	C	.39	.17	.69	.29	C	10.52	47.90	
	4	0	1	3.2		-.19	.04	-.46	.09		8.00	50.00	
	TOTAL		31										

ITEM NUMBER 3

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	3	9.7		-.34	-.32	-.58	-.54		8.00	35.33	
	2	0	0	.0		.00	.00	.00	.00		.00	.00	Problem Solving (A)
C	3	1	28	90.3	C	.34	.32	.55	.52	C	10.54	48.64	Subt-simple separating 11-15
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		31										

ITEM NUMBER 4

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C	1	1	21	67.7	C	.56	.57	.72	.75	C	11.14	52.29	
	2	0	1	3.2		-.19	-.21	-.46	-.51		8.00	33.00	Problem Solving (A)
	3	0	2	6.5		-.21	-.29	-.41	-.57		8.50	33.50	Subt-comparison 0-99
	4	0	7	22.6		-.42	-.38	-.58	-.53		8.57	38.57	
	TOTAL		31										

ITEM NUMBER [illegible]

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	1	0	3	9.7		-.14	-.10	-.24	-.17		9.33	43.67
	2	0	0	.0		.00	.00	.00	.00		.00	.00
C	3	1	28	90.3	C	.14	.10	.23	.16	C	10.39	47.75
	4	0	0	.0		.00	.00	.00	.00		.00	.00
	TOTAL		31									

Problem Solving (B)
Subt-join-addend 11-15

ITEM NUMBER 26

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
C	1	1	21	67.7	C	.59	.36	.77	.46	C	11.19	50.43
	2	0	7	22.6		-.66	-.42	-.92	-.58		7.57	37.71
	3	0	1	3.2		-.02	-.12	-.06	-.30		10.00	39.00
	4	0	2	6.5		.02	.12	.08	.23		10.50	53.00
	TOTAL		31									

Problem Solving (B)
Add-simple joining 0-99

ITEM NUMBER 27

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	1	0	1	3.2		-.19	-.21	-.46	-.51		8.00	33.00
	2	0	1	3.2		-.27	-.21	-.66	-.51		7.00	33.00
C	3	1	29	93.5	C	.33	.30	.58	.53	C	10.48	48.34
	4	0	0	.0		.00	.00	.00	.00		.00	.00
	TOTAL		31									

Order, Place Value
Ordering 0-99

ITEM NUMBER 28

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	1	0	19	61.3		.01	.16	.02	.20		10.32	48.95
C	2	1	4	12.9	C	.51	.37	.82	.58	C	13.25	59.25
	3	0	2	6.5		-.33	-.31	-.64	-.61		7.50	32.50
	4	0	6	19.4		-.25	-.32	-.36	-.45		9.17	39.33
	TOTAL		31									

Order, Place Value
Place Value 0-99

ITEM NUMBER X4

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	1	0	1	3.2		-.19	.04	-.46	.09		8.00	50.00
C	2	1	30	96.8	C	.19	-.04	.36	-.07	C	10.77	47.27
	3	0	0	.0		.00	.00	.00	.00		.00	.00
	4	0	0	.0		.00	.00	.00	.00		.00	.00
	TOTAL		31									

Sentence Writing (A)
Add-part part whole 11-15

108

ITEM NUMBER X10

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	1	0	1	3.2		-.19	-.15	-.46	-.37		8.00	37.00
	2	0	2	6.5		-.39	-.25	-.76	-.49		7.00	35.50
C	3	1	28	90.3	C	.44	.30	.71	.49	C	10.81	48.57
	4	0	0	.0		.00	.00	.00	.00		.00	.00
	TOTAL		31									

Sentence Writing (A)
Subt-simple separating 0-99

LERTAP 2.0 SUMMARY ITEM STATISTICS PAGE 18

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER X11

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	1	0	3	9.7		-.09	-.09	-.16	-.15		9.67	44.00
	2	0	10	32.3		-.59	-.42	-.77	-.54		8.40	39.80
C	3	1	16	51.6	C	.65	.44	.82	.55	C	11.69	52.69
	4	0	2	6.5		-.09	.00	-.18	.01		9.50	47.50
	TOTAL		31									

Sentence Writing (B)
Subt-join-addend 11-15

ITEM NUMBER X12

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	1	0	7	22.6		-.45	-.52	-.63	-.73		8.43	35.29
C	2	1	23	74.2	C	.41	.44	.55	.59	C	10.83	50.57
	3	0	0	.0		.00	.00	.00	.00		.00	.00
	4	0	1	3.2		.06	.16	.14	.38		11.00	58.00
	TOTAL		31									

133

134

Sentence Writing (B)
Subt-part part whole-addend 0-99

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 13

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	6	19.4		-.40	-.35	-.57	-.51		8.50	38.33	
C	2	1	12	38.7	C	.58	.48	.74	.61	C	11.92	54.83	Algorithms
	3	0	12	38.7		-.25	-.19	-.32	-.24		9.58	44.42	Addition Algorithm
	4	0	1	3.2		-.02	-.01	-.06	-.01		10.00	47.00	
	TOTAL		31										

ITEM NUMBER 14

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	0	.0		.00	.00	.00	.00		.00	.00	
	2	0	3	9.7		-.09	-.17	-.16	-.29		9.67	41.00	Algorithms
C	3	1	27	87.1	C	.14	.23	.21	.35	C	10.41	48.44	Subtraction Algorithm
	4	0	1	3.2		-.11	-.15	-.26	-.37		9.00	37.00	
	TOTAL		31										

LERTAP 2.0 SUMMARY ITEM STATISTICS

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 2 SENTENCE WRITING FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	16	51.6	C	.94	.48	1.17	.60	C	3.81	53.13	Sentence Writing
2	0	15	48.4		-.94	-.48	-1.17	-.60		2.07	41.20	Subt-comparison 11-15
TOTAL		31										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	31	100.0	C	.00	.00	.00	.00	C	2.97	47.35	Sentence Writing
2	0	0	.0		.00	.00	.00	.00		.00	.00	Add-part part whole 0-99
TOTAL		31										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	2	6.5		-.13	-.19	-.26	-.36		2.50	38.50	
C 1	1	14	45.2	C	.93	.52	1.17	.65	C	3.93	54.50	Sentence Writing
2	0	15	48.4		-.87	-.43	-1.09	-.53		2.13	41.87	Subt-join-addend 0-99
TOTAL		31										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	31	100.0	C	.00	.00	.00	.00	C	2.97	47.35	Sentence Writing
2	0	0	.0		.00	.00	.00	.00		.00	.00	Add-simple joining 11-15
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 3 ADDITION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	1	3.2		-.42	-.27	-1.02	-.66		4.00	29.00	
C 1	1	30	96.8	C	.42	.27	.81	.52	C	9.97	47.97	1 + 5
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	2	6.5		-.44	-.24	-.87	-.47		5.50	36.00	
C 1	1	29	93.5	C	.44	.24	.78	.42	C	10.07	48.14	3 + 2
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.2		-.42	-.27	-1.02	-.66		4.00	29.00	
C 1	1	29	93.5	C	.55	.37	.97	.64	C	10.14	48.55	4 + 4
2	0	1	3.2		-.35	-.24	-.85	-.59		5.00	31.00	
TOTAL		31										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.2		-.35	-.24	-.85	-.59		5.00	31.00	
C 1	1	28	90.3	C	.40	.36	.66	.59	C	10.11	48.82	3 + 6
2	0	2	6.5		-.24	-.36	-.46	-.51		7.50	35.00	
TOTAL		31										

ITEM NUMBER 5

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	2	6.5		-.50	-.32	-.97	-.63		5.00	32.00	
C 1	1	29	93.5	C	.50	.32	.87	.57	C	10.10	48.41	4 + 3
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING TU SUBTEST 3 ADDITION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	30	96.8	C	.27	.15	.53	.29	C	9.90	47.70	6 + 2
2	0	1	3.2		-.27	-.15	-.67	-.37		6.00	37.00	
TOTAL		31										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	10	32.3		-.76	-.47	-.99	-.61		7.00	38.90	
C 1	1	19	61.3	C	.77	.36	.98	.45	C	11.32	50.89	5 + 8
2	0	2	6.5		-.08	.18	-.16	.38		9.00	56.00	
TOTAL		31										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	9	29.0		-.73	-.50	-.97	-.67		6.89	37.56	
C 1	1	21	67.7	C	.79	.57	1.02	.75	C	11.14	52.29	6 + 9
2	0	1	3.2		-.20	-.22	-.49	-.55		7.00	32.00	
TOTAL		31										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	3	9.7		-.14	-.29	-.25	-.50		8.67	36.33	
C 1	1	28	90.3	C	.14	.29	.23	.47	C	9.89	48.54	9 + 3
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	11	35.5		-.71	-.55	-.91	-.71		7.36	38.09	
C 1	1	18	58.1	C	.78	.62	.98	.78	C	11.44	53.94	5 + 7
2	0	2	6.5		-.18	-.18	-.36	-.34		8.00	39.00	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING TU SUBTEST 3 ADDITION FACTS

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	9	29.0		-.79	-.39	-1.04	-.52		6.67	39.67	
C 1	1	21	67.7	C	.79	.46	1.02	.60	C	11.14	51.33	8 + 9
2	0	1	3.2		-.06	-.21	-.14	-.51		9.00	33.00	
TOTAL		31										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	7	22.6		-.69	-.37	-.95	-.51		6.57	38.86	
C 1	1	21	67.7	C	.81	.37	1.06	.49	C	11.19	50.57	3 + 8
2	0	3	9.7		-.32	-.07	-.55	-.12		7.33	44.67	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	5 - 1
C 1	1	31	100.0	C	.00	.00	.00	.00	C	8.32	47.35	
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.2		-.19	-.17	-.47	-.41		6.00	36.00	
C 1	1	29	93.5	C	.04	.12	.07	.22	C	8.34	47.76	9 - 2
2	0	1	3.2		.14	-.01	.34	-.01		10.00	47.00	
TOTAL		31										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.2		-.36	-.22	-.87	-.55		4.00	32.00	
C 1	1	29	93.5	C	.39	.35	.69	.62	C	8.55	48.52	8 - 7
2	0	1	3.2		-.19	-.27	-.47	-.66		6.00	29.00	
TOTAL		31										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.2		-.27	-.22	-.67	-.55		5.00	32.00	
C 1	1	29	93.5	C	.39	.27	.69	.48	C	8.55	48.24	5 - 3
2	0	1	3.2		-.27	-.15	-.67	-.37		5.00	37.00	
TOTAL		31										

ITEM NUMBER 5

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	31	100.0	C	.00	.00	.00	.00	C	8.32	47.35	7 - 6
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	3	9,7		-,49	-,39	-,85	-,68		5,00	32,33	
C 1	1	25	80,6	C	,59	,49	,83	,70	C	8,96	50,36	8 - 5
2	0	3	9,7		-,29	-,26	-,51	-,45		6,33	37,33	
TOTAL		31										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	8	25,8		-,52	-,31	-,70	-,42		6,37	40,75	
C 1	1	22	71,0	C	,51	,36	,67	,48	C	9,05	50,23	14 - 7
2	0	1	3,2		-,03	-,15	-,06	-,37		8,00	37,00	
TOTAL		31										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	10	32,3		-,60	-,22	-,78	-,29		6,40	43,30	
C 1	1	18	58,1	C	,62	,29	,79	,37	C	9,50	50,44	12 - 5
2	0	3	9,7		-,10	-,13	-,17	-,23		7,67	42,33	
TOTAL		31										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	13	41,9		-,65	-,42	-,83	-,53		6,62	41,23	
C 1	1	14	45,2	C	,77	,53	,97	,67	C	10,21	54,64	11 - 8
2	0	4	12,9		-,19	-,17	-,30	-,28		7,25	41,75	
TOTAL		31										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	17	54,8		-,51	-,35	-,64	-,44		7,29	43,41	
C 1	1	9	29,0	C	,52	,42	,68	,56	C	10,11	55,56	13 - 7
2	0	5	16,1		,05	-,05	,08	-,07		8,60	46,00	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING TU SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 11

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	14	45.2		-.63	-.44	-.79	-.55		6.79	41.29	
C	1	1	12	38.7	C	.66	.53	.84	.68	C	10.17	55.75	12 - 9
	2	0	5	16.1		-.02	-.11	-.04	-.17		8.20	44.20	
	TOTAL		31										

ITEM NUMBER 12

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	14	45.2		-.37	-.22	-.46	-.28		7.43	44.29	
C	1	1	9	29.0	C	.68	.34	.89	.44	C	10.67	53.89	15 - 8
	2	0	8	25.8		-.28	-.09	-.39	-.13		7.25	45.37	
	TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	27	87.1	C	-.02	-.02	-.03	-.03	C	10.19	47.26
2	0	4	12.9		.02	.02	.03	.03		10.50	48.00
TOTAL		31									

ITEM DESCRIPTIONS: 43 + 25

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	30	96.8	C	.24	.22	.45	.43	C	10.47	47.87
2	0	1	3.2		-.24	-.22	-.58	-.55		3.00	32.00
TOTAL		31									

ITEM DESCRIPTIONS: 14 + 84

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	1	3.2		-.14	-.01	-.34	-.01		6.00	47.00
C 1	1	27	87.1	C	.38	.33	.58	.51	C	11.04	48.93
2	0	3	9.7		-.34	-.37	-.59	-.64		4.33	33.33
TOTAL		31									

ITEM DESCRIPTIONS: 52 + 45

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	29	93.5	C	.27	.17	.47	.29	C	10.62	47.90
2	0	2	6.5		-.27	-.17	-.52	-.32		4.50	39.50
TOTAL		31									

ITEM DESCRIPTIONS: 614 + 384

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	29	93.5	C	.17	.06	.31	.11	C	10.48	47.55
2	0	2	6.5		-.17	-.06	-.34	-.12		6.50	44.50
TOTAL		31									

ITEM DESCRIPTIONS: 132 + 551

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 5 ADDITION ALGORITHM

118

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	30	96.8	C	.14	.01	.27	.01	C	10.37	47.37
2	0	1	3.2		-.14	-.01	-.34	-.01		6.00	47.00
TOTAL		31									

503 + 293

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	14	45.2	C	.62	.69	.78	.87	C	14.07	56.86
2	0	17	54.8		-.62	-.69	-.78	-.87		7.06	39.53
TOTAL		31									

56 + 6

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	2	6.5		-.17	-.10	-.34	-.20		6.50	42.50
C 1	1	17	54.8	C	.57	.64	.71	.81	C	13.12	54.65
2	0	12	38.7		-.49	-.61	-.63	-.77		6.75	37.83
TOTAL		31									

29 + 8

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	2	6.5		-.20	-.22	-.39	-.43		6.00	37.00
C 1	1	15	48.4	C	.77	.72	.96	.91	C	14.67	56.67
2	0	14	45.2		-.67	-.62	-.84	-.78		6.07	38.86
TOTAL		31									

6 + 85

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	6	19.4		-.18	-.16	-.26	-.24		8.17	43.17
C 1	1	9	29.0	C	.84	.76	1.11	1.01	C	17.56	62.22
2	0	16	51.6		-.62	-.56	-.77	-.71		6.88	40.56
TOTAL		31									

38 + 45

153

154

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	2	6.5		-.15	-.11	-.29	-.22		7.00	42.00
C 1	1	11	35.5	C	.73	.71	.93	.92	C	15.73	59.36
2	0	18	58.1		-.63	-.64	-.80	-.80		7.22	40.61
TOTAL		31									

29
+ 32

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	3	9.7		-.19	-.14	-.32	-.24		7.00	42.00
C 1	1	3	9.7	C	.49	.52	.85	.89	C	18.67	67.00
2	0	25	80.6		-.23	-.28	-.32	-.40		9.60	45.64
TOTAL		31									

98
+ 72

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	4	12.9		-.24	-.25	-.38	-.40		6.75	39.25
C 1	1	11	35.5	C	.88	.71	1.14	.92	C	16.91	59.36
2	0	16	51.6		-.69	-.52	-.86	-.65		6.50	41.12
TOTAL		31									

167
+ 426

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	4	12.9		-.24	-.25	-.38	-.40		6.75	39.25
C 1	1	9	29.0	C	.84	.72	1.11	.95	C	17.56	61.33
2	0	18	58.1		-.61	-.49	-.77	-.62		7.33	42.17
TOTAL		31									

727
+ 213

ITEM NUMBER 15

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	19.4		-.27	-.22	-.38	-.31		7.17	41.83
C 1	1	8	25.8	C	.79	.59	1.07	.80	C	17.75	59.87
2	0	17	54.8		-.48	-.35	-.61	-.44		7.76	43.41
TOTAL		31									

409
+ 383

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	7	22.6		-.31	-.29	-.43	-.41		7.00	40.57
C 1	1	9	29.0	C	.90	.70	1.19	.93	C	18.11	61.00
2	0	15	48.4		-.56	-.39	-.70	-.49		7.00	42.33
TOTAL		31									

155 + 792

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.35	-.31	-.48	-.41		6.88	40.87
C 1	1	10	32.3	C	.92	.77	1.20	1.00	C	17.70	61.20
2	0	13	41.9		-.56	-.45	-.71	-.57		6.54	40.69
TOTAL		31									

671 + 176

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.35	-.31	-.48	-.41		6.88	40.87
C 1	1	10	32.3	C	.92	.77	1.20	1.00	C	17.70	61.20
2	0	13	41.9		-.56	-.45	-.71	-.57		6.54	40.69
TOTAL		31									

334 + 484

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	10	32.3		-.35	-.24	-.45	-.31		7.40	43.00
C 1	1	8	25.8	C	.86	.63	1.16	.85	C	18.37	60.62
2	0	13	41.9		-.43	-.33	-.54	-.41		7.38	42.54
TOTAL		31									

479 + 479

ITEM NUMBER 20

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	14	45.2		-.38	-.35	-.48	-.44		7.86	42.57
C 1	1	6	19.4	C	.78	.60	1.12	.87	C	19.17	62.67
2	0	11	35.5		-.25	-.13	-.32	-.17		8.36	45.09
TOTAL		31									

338 + 595

157

158

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 21

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	18	58.1		-.08	-.10	-.10	-.12		9.83	46.33
C 1	1	1	3.2	C	.45	.52	1.10	1.28	C	24.00	83.00
2	0	12	38.7		-.08	-.09	-.10	-.12		9.67	45.92
TOTAL		31									

ITEM NUMBER 22

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	21	67.7		.04	-.04	.05	-.05		10.38	47.00
C 1	1	1	3.2	C	.45	.52	1.10	1.28	C	24.00	83.00
2	0	9	29.0		-.22	-.16	-.29	-.21		8.33	44.22
TOTAL		31									

ITEM NUMBER 23

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	24	77.4		-.01	-.02	-.01	-.03		10.21	47.21
C 1	1	2	6.5	C	.53	.51	1.03	.99	C	21.50	71.50
2	0	5	16.1		-.35	-.31	-.52	-.47		5.80	38.40
TOTAL		31									

ITEM NUMBER 24

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	24	77.4		-.01	-.02	-.01	-.03		10.21	47.21
C 1	1	1	3.2	C	.45	.52	1.10	1.28	C	24.00	83.00
2	0	6	19.4		-.19	-.21	-.28	-.30		8.00	42.00
TOTAL		31									

864
+ 658

59
49
+ 37

21
33
+ 59

86
27
+ 98

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	29	93.5	C	.20	.13	.35	.24	C	5.93	47.79
2	0	2	6.5		-.20	-.13	-.39	-.26		3.50	41.00
TOTAL		31									

ITEM DESCRIPTIONS

87
- 51

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	25	80.6	C	.35	.26	.49	.36	C	6.28	48.92
2	0	6	19.4		-.35	-.26	-.50	-.37		3.67	40.83
TOTAL		31									

79
- 43

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	27	87.1	C	.33	.43	.50	.66	C	6.15	49.41
2	0	4	12.9		-.33	-.43	-.52	-.68		3.25	33.50
TOTAL		31									

98
- 25

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	2	6.5		-.25	-.18	-.48	-.34		3.00	39.00
C 1	1	25	80.6	C	.35	.03	.49	.04	C	6.28	47.52
2	0	4	12.9		-.23	.10	-.37	.15		4.00	50.50
TOTAL		31									

915
- 411

ITEM NUMBER 5

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	3	9.7		-.23	-.31	-.40	-.53		3.67	35.67
C 1	1	23	74.2	C	.33	.34	.44	.45	C	6.35	49.83
2	0	5	16.1		-.20	-.15	-.31	-.23		4.40	43.00
TOTAL		31									

293
- 140

TEST NO 1 ACHIEVEMENT MONITORING TU SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 6

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
	0	0	3	9.7		-.31	-.27	-.53	-.47		3.00	37.00
C	1	1	25	80.6	C	.35	.30	.49	.43	C	6.28	49.20
	2	0	3	9.7		-.16	-.13	-.27	-.23		4.33	42.33
	TOTAL		31									

868 − 443

ITEM NUMBER 7

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
	0	0	3	9.7		.21	.31	.36	.53		7.67	59.00
C	1	1	2	6.5	C	.68	.37	1.33	.72	C	13.50	65.00
	2	0	26	83.9		-.62	-.49	-.92	-.73		4.96	44.65
	TOTAL		31									

53 − 9

ITEM NUMBER 8

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
	0	0	1	3.2		.01	-.06	.03	-.16		6.00	43.00
C	1	1	5	16.1	C	.68	.49	1.03	.74	C	10.40	61.40
	2	0	25	80.6		-.64	-.43	-.91	-.61		4.84	44.72
	TOTAL		31									

34 − 6

ITEM NUMBER 9

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
	0	0	1	3.2		.01	-.06	.03	-.16		6.00	43.00
C	1	1	5	16.1	C	.62	.61	.94	.91	C	10.00	64.60
	2	0	25	80.6		-.59	-.54	-.84	-.76		4.92	44.08
	TOTAL		31									

67 − 8

ITEM NUMBER 10

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
	0	0	0	.0		.00	.00	.00	.00		.00	.00
C	1	1	1	3.2	C	.81	.52	1.99	1.28	C	19.00	83.00
	2	0	30	96.8		-.81	-.52	-1.57	-1.01		5.33	46.17
	TOTAL		31									

70 − 39

124

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	2	6.5		-.07	-.04	-.13	-.08		5.00	45.50
C 1	1	1	3.2	C	.81	.52	1.99	1.28	C	19.00	83.00
2	0	28	90.3		-.43	-.28	-.70	-.46		5.36	46.21
TOTAL		31									

53 − 34

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	5	16.1		-.11	-.13	-.17	-.20		5.00	43.60
C 1	1	1	3.2	C	.81	.52	1.99	1.28	C	19.00	83.00
2	0	25	80.6		-.26	-.11	-.37	-.16		5.40	46.68
TOTAL		31									

83 − 27

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	19.4		-.13	-.11	-.18	-.16		5.00	44.50
C 1	1	2	6.5	C	.82	.54	1.59	1.05	C	15.00	73.00
2	0	23	74.2		-.34	-.20	-.46	-.27		5.17	45.87
TOTAL		31									

864 − 225

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	19.4		-.16	-.04	-.22	-.06		4.83	46.33
C 1	1	2	6.5	C	.82	.54	1.59	1.05	C	15.00	73.00
2	0	23	74.2		-.32	-.27	-.43	-.36		5.22	45.39
TOTAL		31									

774 − 529

ITEM NUMBER 15

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.13	-.12	-.17	-.16		5.12	44.87
C 1	1	2	6.5	C	.82	.54	1.59	1.05	C	15.00	73.00
2	0	21	67.7		-.31	-.17	-.40	-.23		5.14	45.86
TOTAL		31									

952 − 843

TEST NO 1 ACHIEVEMENT MONITORING TU SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	9	29.0		-.07	-.06	-.09	-.08		5.44	46.22
C 1	1	1	3.2	C	.81	.52	1.99	1.28	C	19.00	83.00
2	0	21	67.7		-.24	-.14	-.31	-.18		5.29	46.14
TOTAL		31									

614 − 384

ITEM NUMBER 17

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	10	32.3		-.13	-.14	-.17	-.18		5.20	44.90
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	21	67.7		.13	.14	.17	.18		6.05	48.52
TOTAL		31									

929 − 536

ITEM NUMBER 18

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	11	35.5		-.13	-.22	-.16	-.28		5.27	43.73
C 1	1	1	3.2	C	.81	.52	1.99	1.28	C	19.00	83.00
2	0	19	61.3		-.17	.02	-.22	.03		5.37	47.58
TOTAL		31									

639 − 243

ITEM NUMBER 19

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	13	41.9		-.18	-.15	-.22	-.19		5.15	45.15
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	18	58.1		.18	.15	.22	.19		6.22	48.94
TOTAL		31									

824 − 628

ITEM NUMBER 20

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	15	48.4		-.14	-.14	-.18	-.18		5.33	45.53
C 1	1	1	3.2	C	.81	.52	1.99	1.28	C	19.00	83.00
2	0	15	48.4		-.14	-.04	-.18	-.05		5.33	46.80
TOTAL		31									

942 − 595

TEST NO 1 ACHIEVEMENT MONITORING 7U SUBTEST 6 SUBTRACTION ALGORITHM

126

ITEM NUMBER 21

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	15	48.4		-.14	-.14	-.18	-.18		5.33	45.53
C 1	1	1	3.2	C	.81	.52	1.99	1.28	C	19.00	83.00
2	0	15	48.4		-.14	-.04	-.18	-.05		5.33	46.80
TOTAL		31									

328 − 169

ITEM NUMBER 22

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	17	54.8		.08	-.04	.11	-.05		6.00	46.88
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	14	45.2		-.08	.04	-.11	.05		5.50	47.93
TOTAL		31									

710 − 469

ITEM NUMBER 23

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	17	54.8		.08	-.04	.11	-.05		6.00	46.88
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	14	45.2		-.08	.04	-.11	.05		5.50	47.93
TOTAL		31									

803 − 427

ITEM NUMBER 24

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	20	64.5		.01	-.10	.02	-.13		5.80	46.40
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	11	35.5		-.01	.10	-.02	.13		5.73	49.09
TOTAL		31									

600 − 212

ADMINISTRATION TIME: A1

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 16

TEST NO 1 ACHIEVEMENT MONITORING 7V — SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 1

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
C	1	1	27	84.4	C	.56	.38	.83	.87	C	9.44	44.59
	2	0	1	3.1		-.26	-.11	-.64	-.26		5.00	36.00
	3	0	2	6.3		-.23	-.20	-.45	-.39		6.50	34.00
	4	0	2	6.3		-.42	-.30	-.83	-.59		4.50	29.50
	TOTAL		32									

ITEM DESCRIPTIONS

Numerousness
Writes 0-99

ITEM NUMBER 2

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	1	0	0	.0		.00	.00	.00	.00		.00	.00
C	2	1	30	93.8	C	.33	.43	.58	.76	C	9.03	43.97
	3	0	0	.0		.00	.00	.00	.00		.00	.00
	4	0	2	6.3		-.33	-.43	-.64	-.84		5.50	24.00
	TOTAL		32									

Numerousness
Represents 0-99

ITEM NUMBER 3

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
C	1	1	19	59.4	C	.33	.42	.42	.53	C	9.53	46.63
	2	0	4	12.5		-.04	-.17	-.07	-.28		8.50	37.50
	3	0	4	12.5		.06	.00	.10	.00		9.25	42.75
	4	0	5	15.6		-.46	-.41	-.70	-.62		6.00	32.00
	TOTAL		32									

Problem Solving (A)
Comparison 11-15

ITEM NUMBER 4

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	1	0	1	3.1		-.26	-.22	-.64	-.54		5.00	29.00
	2	0	8	25.0		.04	.01	.06	.01		9.00	42.87
C	3	1	16	50.0	C	.31	.26	.39	.32	C	9.62	45.62
	4	0	7	21.9		-.31	-.23	-.43	-.32		7.29	37.86
	TOTAL		32									

Problem Solving (A)
Add-part part whole 0-99

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
1	0	3	9.4		-.34	-.11	-.60	-.18		6.00	39.00
2	0	0	.0		.00	.00	.00	.00		.00	.00
C 3	1	25	78.1	C	.71	.39	.99	.54	C	9.80	45.04
4	0	4	12.5		-.58	-.39	-.94	-.63		4.75	31.00
TOTAL		32									

Problem Solving (B)
Subt-part part whole-addend
11-15

128

ITEM NUMBER 26

COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
C 1	1	21	65.6	C	.65	.35	.84	.46	C	10.05	45.62
2	0	1	3.1		-.33	-.15	-.81	-.38		4.00	33.00
3	0	4	12.5		-.37	-.16	-.59	-.25		6.25	38.00
4	0	6	18.8		-.33	-.23	-.48	-.33		7.00	37.33
TOTAL		32									

Problem Solving (B)
Subt-join-addend 0-99

ITEM NUMBER 27

COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
1	0	6	18.8		-.15	-.24	-.22	-.34		8.00	37.17
C 2	1	24	75.0	C	.26	.26	.35	.35	C	9.21	44.42
3	0	1	3.1		-.26	-.09	-.64	-.22		5.00	37.00
4	0	1	3.1		-.06	-.03	-.14	-.07		8.00	41.00
TOTAL		32									

Order, Place Value
Ordering 0-99

ITEM NUMBER 28

COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
C 1	1	7	21.9	C	.58	.49	.82	.69	C	11.71	53.29
2	0	4	12.5		-.08	.02	-.13	.03		8.25	43.25
3	0	13	40.6		-.30	-.25	-.39	-.32		7.85	39.23
4	0	8	25.0		-.15	-.20	-.21	-.27		8.13	38.87
TOTAL		32									

Order, Place Value
Place Value 0-99

ITEM NUMBER 9

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	0	.0		.00	.00	.00	.00		.00	.00	
C	2	1	31	96.9	C	.26	.09	.51	.18	C	8.94	42.90	Sentence Writing (A)
	3	0	1	3.1		-.26	-.09	-.64	-.22		5.00	37.00	Subt-simple separating 11-15
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		32										

ITEM NUMBER 10

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	14	43.8		-.58	-.53	-.74	-.67		7.07	35.86	
	2	0	1	3.1		-.26	-.09	-.64	-.22		5.00	37.00	Sentence Writing (A)
C	3	1	15	46.9	C	.73	.69	.92	.86	C	10.87	51.00	Subt-comparison 0-99
	4	0	2	6.3		-.13	-.26	-.25	-.50		7.50	31.50	
	TOTAL		32										

TEST NO 1 ACHIEVEMENT MONITORING TV SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 11

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	5	15.6		-.43	-.27	-.65	-.41		6.20	35.60	
	2	0	2	6.3		-.03	.05	-.06	.10		8.50	45.00	Sentence Writing (B)
C	3	1	24	75.0	C	.48	.29	.65	.39	C	9.54	44.58	Subt-part part whole-addend 11-15
	4	0	1	3.1		-.26	-.22	-.64	-.54		5.00	29.00	
	TOTAL		32										

ITEM NUMBER 12

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	1	3.1		-.12	-.15	-.31	-.38		7.00	33.00	
C	2	1	29	90.6	C	.39	.28	.63	.45	C	9.14	43.72	Sentence Writing (B)
	3	0	1	3.1		-.26	-.09	-.64	-.22		5.00	37.00	Add-simple joining 0-99
	4	0	1	3.1		-.26	-.22	-.64	-.54		5.00	29.00	
	TOTAL		32										

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C 1	1	10	31.3	C	.43	.61	.57	.79	C	10.50	52.90	
2	0	12	37.5		.03	-.05	.04	-.07		8.92	41.92	Algorithms
3	0	5	15.6		-.20	-.48	-.30	-.72		7.60	30.20	Addition Algorithm
4	0	5	15.6		-.40	-.22	-.60	-.34		6.40	36.80	
TOTAL		32										

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	22	68.8		-.13	.02	-.16	.02		8.59	42.86	
2	0	2	6.3		-.08	-.08	-.16	-.17		8.00	39.00	Algorithms
C 3	1	4	12.5	C	.42	.29	.68	.47	C	11.75	51.50	Subtraction Algorithm
4	0	4	12.5		-.19	-.24	-.30	-.41		7.50	35.00	
TOTAL		32										

LERTAP 2.0 SUMMARY ITEM STATISTICS

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 2 SENTENCE WRITING FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	31	96.9	C	.33	.44	.65	.85	C	3.42	43.61	Sentence Writing
2	0	1	3.1		-.33	-.44	-.83	-1.09		2.00	15.00	Add-part part whole 11-15
TOTAL		32										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	32	100.0	C	.00	.00	.00	.00	C	3.37	42.72	Sentence Writing
2	0	0	.0		.00	.00	.00	.00		.00	.00	Subt-simple separating 0-99
TOTAL		32										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.1		-.33	-.15	-.83	-.38		2.00	33.00	
C 1	1	25	78.1	C	.68	.41	.94	.57	C	3.64	45.16	Sentence Writing
2	0	6	18.8		-.57	-.36	-.82	-.53		2.50	34.17	Subt-part part whole-addend 0-99
TOTAL		32										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.1		-.33	-.22	-.83	-.54		2.00	29.00	
C 1	1	20	62.5	C	.83	.33	1.06	.43	C	3.85	45.65	Sentence Writing
2	0	11	34.4		-.72	-.26	-.93	-.34		2.64	38.64	Subt-join-addend 11-15
TOTAL		32										

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 3 ADDITION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	30	93.8	C	-.07	-.15	-.12	-.27	C	9.37	42.27	3 + 1
2	0	2	6.3		.07	.15	.13	.30		10.00	49.50	
TOTAL		32										

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	ITEM DESCRIPTIONS
0	0	1	3.1		-.56	-.44	-1.40	-1.09		2.00	15.00	
C 1	1	31	96.9	C	.56	.44	1.10	.85	C	9.65	43.61	2 + 5
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	ITEM DESCRIPTIONS
0	0	1	3.1		-.56	-.44	-1.40	-1.09		2.00	15.00	
C 1	1	31	96.9	C	.56	.44	1.10	.85	C	9.65	43.61	1 + 6
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	ITEM DESCRIPTIONS
0	0	1	3.1		-.56	-.44	-1.40	-1.09		2.00	15.00	
C 1	1	31	96.9	C	.56	.44	1.10	.85	C	9.65	43.61	7 + 2
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	31	96.9	C	.18	.09	.36	.18	C	9.48	42.90	2 + 6
2	0	1	3.1		-.18	-.09	-.45	-.22		7.00	37.00	
TOTAL		32										

TEST NO 1 ACHIEVEMENT MONITORING TV SUBTEST 3 ADDITION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	2	6.3		-.43	-.26	-.84	-.50		5.50	31.50	
C 1	1	29	90.6	C	.69	.47	1.14	.78	C	9.93	44.45	3 + 5
2	0	1	3.1		-.56	-.44	-1.40	-1.09		2.00	15.00	
TOTAL		32										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	5	15.6		-.73	-.40	-1.11	-.61		5.40	32.20	
C 1	1	26	81.3	C	.73	.38	1.04	.54	C	10.23	44.77	4 + 8
2	0	1	3.1		-.11	-.01	-.27	-.03		8.00	42.00	
TOTAL		32										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	9	28.1		-.64	-.50	-.85	-.67		7.00	33.67	
C 1	1	19	59.4	C	.71	.48	.90	.61	C	10.79	47.21	3 + 7
2	0	4	12.5		-.19	-.03	-.30	-.05		8.25	41.75	
TOTAL		32										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	11	34.4		-.71	-.55	-.92	-.70		7.09	34.18	
C 1	1	20	62.5	C	.71	.55	.90	.70	C	10.70	47.50	5 + 9
2	0	1	3.1		-.03	-.03	-.08	-.07		9.00	41.00	
TOTAL		32										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	17	53.1		-.74	-.70	-.93	-.88		7.76	35.24	
C 1	1	15	46.9	C	.74	.70	.93	.88	C	11.27	51.20	6 + 8
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 3 ADDITION FACTS

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	13	40.6		-.57	-.56	-.73	-.71		7.77	35.08	
C 1	1	16	50.0	C	.52	.50	.65	.63	C	10.62	48.44	8 + 7
2	0	3	9.4		.08	.07	.14	.13		10.00	45.33	
TOTAL		32										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	5	15.6		-.59	-.49	-.89	-.74		6.20	29.80	
C 1	1	22	68.8	C	.52	.41	.68	.54	C	10.23	45.86	4 + 9
2	0	5	15.6		-.07	-.03	-.11	-.05		9.00	41.80	
TOTAL		32										

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	1	3.1		.08	-.12	.19	-.30		9.00	35.00	
C 1	1	29	90.6	C	.28	.15	.46	.25	C	8.03	43.28	7 - 1
2	0	2	6.3		-.39	-.10	-.78	-.19		3.50	38.50	
TOTAL		32										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.1		-.31	-.09	-.76	-.22		3.00	37.00	
C 1	1	30	93.8	C	.49	.38	.86	.67	C	8.13	43.83	8 - 4
2	0	1	3.1		-.37	-.44	-.92	-1.09		2.00	15.00	
TOTAL		32										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	2	6.3		-.35	-.40	-.69	-.80		4.00	25.00	
C 1	1	28	87.5	C	.58	.31	.90	.48	C	8.39	44.04	9 - 5
2	0	2	6.3		-.44	-.02	-.87	-.03		3.00	42.00	
TOTAL		32										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	5	15.6		-.55	-.35	-.83	-.53		4.20	33.60	
C 1	1	25	78.1	C	.66	.53	.92	.73	C	8.76	45.88	7 - 4
2	0	2	6.3		-.30	-.38	-.60	-.75		4.50	26.00	
TOTAL		32										

ITEM NUMBER 5

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	7	21.9		-.66	-.35	-.92	-.49		4.29	35.29	
C 1	1	23	71.9	C	.72	.48	.96	.63	C	9.04	46.09	8 - 6
2	0	2	6.3		-.21	-.29	-.41	-.57		5.50	30.00	
TOTAL		32										

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	5	15.6		-.61	-.32	-.93	-.49		3.80	34.20	
C 1	1	27	84.4	C	.61	.32	.91	.48	C	8.52	44.30	4 - 3
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	4	12.5		-.44	-.09	-.71	-.15		4.50	40.00	
C 1	1	26	81.3	C	.53	.19	.76	.27	C	8.50	43.73	11 - 2
2	0	2	6.3		-.26	-.18	-.50	-.35		5.00	35.00	
TOTAL		32										

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	21	65.6		-.67	-.51	-.86	-.66		6.43	38.52	
C 1	1	8	25.0	C	.59	.41	.80	.56	C	10.62	50.75	13 - 8
2	0	3	9.4		.22	.23	.38	.39		9.67	50.67	
TOTAL		32										

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	19	59.4		-.70	-.58	-.89	-.73		6.16	37.32	
C 1	1	11	34.4	C	.67	.66	.86	.86	C	10.36	53.09	12 - 7
2	0	2	6.3		.11	-.13	.22	-.26		9.00	37.00	
TOTAL		32										

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	16	50.0		-.75	-.59	-.94	-.74		5.69	36.00	
C 1	1	8	25.0	C	.64	.66	.87	.90	C	10.87	55.62	15 - 9
2	0	8	25.0		.23	.03	.31	.04		8.87	43.25	
TOTAL		32										

TEST NO 1 ACHIEVEMENT MONITORING TV SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	5	15.6		-.58	-.49	-.88	-.74		4.00	29.80	
C 1	1	23	71.9	C	.60	.46	.79	.61	C	8.83	45.96	
2	0	4	12.5		-.17	-.08	-.28	-.13		6.50	40.25	10 - 2
TOTAL		32										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	21	65.6		-.57	-.42	-.74	-.54		6.62	39.29	
C 1	1	11	34.4	C	.57	.42	.74	.54	C	10.00	49.27	16 - 7
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	1	3.1		-.23	-.44	-.57	-1.09		2.00	15.00
C 1	1	28	87.5	C	.31	.32	.48	.50	C	8.11	44.11
2	0	3	9.4		-.22	-.11	-.38	-.18		4.67	39.00
TOTAL		32									

ITEM DESCRIPTIONS: 53 + 34

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	30	93.8	C	-.32	-.26	-.57	-.46	C	7.23	41.97
2	0	2	6.3		.32	.26	.63	.51		13.00	54.00
TOTAL		32									

ITEM DESCRIPTIONS: 30 + 21

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	30	93.8	C	.24	.22	.43	.39	C	7.87	43.37
2	0	2	6.3		-.24	-.22	-.48	-.44		3.50	33.00
TOTAL		32									

ITEM DESCRIPTIONS: 27 + 62

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	5	15.6		-.41	-.53	-.63	-.80		3.40	28.80
C 1	1	27	84.4	C	.41	.53	.61	.79	C	8.37	45.30
2	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		32									

ITEM DESCRIPTIONS: 503 + 293

ITEM NUMBER 5

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	7	21.9		-.49	-.57	-.68	-.79		3.57	30.57
C 1	1	25	78.1	C	.49	.57	.68	.79	C	8.72	46.12
2	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		32									

ITEM DESCRIPTIONS: 265 + 314

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	6	18.8		-.45	-.53	-.68	-.77		3.50	30.17
C 1	1	21	65.6	C	.37	.27	.48	.35	C	8.76	44.95
2	0	5	15.6		.00	.22	.00	.33		7.60	48.40
TOTAL		32									

332
+246

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	4	12.5		-.29	-.33	-.47	-.53		4.25	32.75
C 1	1	12	37.5	C	.74	.65	.94	.83	C	11.75	52.25
2	0	16	50.0		-.52	-.41	-.66	-.52		5.31	38.06
TOTAL		32									

7
+56

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	7	21.9		-.37	-.38	-.51	-.53		4.57	34.57
C 1	1	13	40.6	C	.70	.63	.89	.80	C	11.31	51.38
2	0	12	37.5		-.40	-.32	-.51	-.40		5.33	38.08
TOTAL		32									

68
+ 8

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	10	31.3		-.35	-.51	-.46	-.66		5.30	34.20
C 1	1	9	28.1	C	.60	.48	.80	.64	C	11.78	51.44
2	0	13	40.6		-.21	.04	-.27	.05		6.46	43.23
TOTAL		32									

79
+ 7

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	9	28.1		-.24	-.32	-.33	-.42		5.89	37.00
C 1	1	6	18.8	C	.65	.40	.94	.88	C	13.50	52.17
2	0	17	53.1		-.29	-.03	-.36	-.04		6.41	42.41
TOTAL		32									

29
+64

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	9	28.1		-.23	-.38	-.30	-.51		6.00	35.78
C 1	1	8	25.0	C	.68	.63	.93	.85	C	12.75	55.00
2	0	15	46.9		-.39	-.20	-.48	-.25		5.80	40.33
TOTAL		32									

45
+ 28

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	10	31.3		-.17	-.33	-.22	-.44		6.50	37.10
C 1	1	5	15.6	C	.63	.43	.96	.65	C	14.00	54.00
2	0	17	53.1		-.30	-.00	-.38	-.00		6.35	42.71
TOTAL		32									

77
+ 95

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	7	21.9		-.23	-.32	-.32	-.45		5.71	35.86
C 1	1	4	12.5	C	.66	.43	1.07	.69	C	15.25	55.50
2	0	21	65.6		-.26	-.02	-.34	-.02		6.76	42.57
TOTAL		32									

426
+ 458

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	9	28.1		-.32	-.52	-.43	-.69		5.33	33.33
C 1	1	3	9.4	C	.72	.48	1.25	.84	C	17.33	59.67
2	0	20	62.5		-.13	.19	-.17	.24		7.15	44.40
TOTAL		32									

239
+ 653

ITEM NUMBER 15

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	14	43.8		-.35	-.39	-.44	-.49		5.86	37.71
C 1	1	4	12.5	C	.77	.54	1.24	.87	C	16.50	59.00
2	0	14	43.8		-.16	.03	-.21	.03		6.79	43.07
TOTAL		32									

115
+ 875

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	11	34.4		-.40	-.48	-.52	-.62		5.18	35.18
C 1	1	5	15.6	C	.79	.47	1.20	.71	C	15.60	55.00
2	0	16	50.0		-.19	.12	-.24	.15		6.75	44.06
TOTAL		32									

174
+ 642

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	18	56.3		-.33	-.43	-.41	-.54		6.33	38.44
C 1	1	4	12.5	C	.75	.55	1.20	.89	C	16.25	59.25
2	0	10	31.3		-.18	.06	-.24	.08		6.40	43.80
TOTAL		32									

583
+ 241

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	19	59.4		-.25	-.33	-.32	-.42		6.68	39.63
C 1	1	3	9.4	C	.77	.50	1.34	.87	C	18.00	60.33
2	0	10	31.3		-.22	.03	-.28	.05		6.20	43.30
TOTAL		32									

186
+ 570

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	21	65.6		-.37	-.53	-.48	-.68		6.43	38.38
C 1	1	2	6.3	C	.76	.43	1.50	.84	C	20.50	61.50
2	0	9	28.1		-.02	.33	-.03	.44		7.44	48.67
TOTAL		32									

263
+ 459

ITEM NUMBER 20

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	22	68.8		-.26	-.34	-.34	-.44		6.82	40.14
C 1	1	2	6.3	C	.76	.43	1.50	.84	C	20.50	61.50
2	0	8	25.0		-.14	.12	-.20	.17		6.50	45.12
TOTAL		32									

359
+ 265

141

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 5 ADDITION ALGORITHM

142

ITEM NUMBER 21

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	23	71.9		-.30	-.40	-.39	-.53		6.78	39.91
C 1	1	1	3.1	C	.55	.46	1.36	1.15	C	21.00	72.00
2	0	8	25.0		.09	.22	.12	.31		8.25	47.12
TOTAL		32									

COEFFICIENTS OF CORRELATION — MEANS

767
+ 434

ITEM NUMBER 22

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	25	78.1		-.12	-.31	-.16	-.43		7.32	40.88
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	7	21.9		.12	.31	.17	.43		8.57	49.29
TOTAL		32									

COEFFICIENTS OF CORRELATION — MEANS

19
64
+ 58

ITEM NUMBER 23

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	27	84.4		-.16	-.42	-.24	-.63		7.30	40.67
C 1	1	1	3.1	C	.55	.46	1.36	1.15	C	21.00	72.00
2	0	4	12.5		-.12	.22	-.19	.35		6.25	49.25
TOTAL		32									

COEFFICIENTS OF CORRELATION — MEANS

67
25
+ 22

ITEM NUMBER 24

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	28	87.5		-.27	-.33	-.42	-.52		7.14	41.29
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	4	12.5		.27	.33	.44	.54		10.75	52.75
TOTAL		32									

COEFFICIENTS OF CORRELATION — MEANS

58
98
+ 85

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	1	3.1		-.52	-.44	-1.28	-1.09		.00	15.00
C 1	1	30	93.8	C	.23	.20	.40	.35	C	5.87	43.30
2	0	1	3.1		.20	.16	.50	.40		8.00	53.00
TOTAL		32									

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	31	96.9	C	.52	.44	1.00	.85	C	5.94	43.61
2	0	1	3.1		-.52	-.44	-1.28	-1.09		.00	15.00
TOTAL		32									

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	28	87.5	C	.33	.23	.61	.36	C	6.00	43.71
2	0	4	12.5		-.33	-.23	-.53	-.37		4.00	35.75
TOTAL		32									

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	5	15.6		-.63	-.33	-.96	-.50		2.80	34.00
C 1	1	26	81.3	C	.82	.50	1.17	.72	C	6.54	45.46
2	0	1	3.1		-.52	-.44	-1.28	-1.09		.00	15.00
TOTAL		32									

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	5	15.6		-.63	-.33	-.96	-.50		2.80	34.00
C 1	1	26	81.3	C	.82	.50	1.17	.72	C	6.54	45.46
2	0	1	3.1		-.52	-.44	-1.28	-1.09		.00	15.00
TOTAL		32									

ITEM DESCRIPTIONS

67
- 42

56
- 25

88
- 76

698
- 457

482
- 231

203

204

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	5	15.6		-.63	-.33	-.96	-.50		2.80	34.00
C 1	1	25	78.1	C	.80	.52	1.12	.72	C	6.60	45.84
2	0	2	6.3		-.42	-.39	-.83	-.77		2.50	25.50
TOTAL		32									

985
- 265

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	9	28.1		-.20	-.19	-.27	-.25		5.11	39.33
C 1	1	6	18.8	C	.62	.65	.90	.94	C	8.33	58.00
2	0	17	53.1		-.31	-.34	-.38	-.42		5.18	39.12
TOTAL		32									

32
- 5

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	9	28.1		-.44	-.38	-.59	-.50		4.33	35.89
C 1	1	4	12.5	C	.52	.44	.84	.71	C	8.50	56.00
2	0	19	59.4		.06	.05	.07	.06		5.84	43.16
TOTAL		32									

74
- 8

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	8	25.0		-.25	-.22	-.34	-.29		4.87	38.50
C 1	1	4	12.5	C	.52	.38	.84	.56	C	8.50	53.25
2	0	20	62.5		-.13	-.05	-.16	-.06		5.55	42.30
TOTAL		32									

61
- 5

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	5	15.6		-.03	.02	-.05	.03		5.60	43.20
C 1	1	2	6.3	C	.36	.45	.70	.89	C	8.50	62.50
2	0	25	78.1		-.18	-.28	-.25	-.39		5.56	41.04
TOTAL		32									

72
- 28

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 11

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	4	12.5		-.05	.07	-.08	.11		5.50	44.75
C 1	1	1	3.1	C	.29	.24	.72	.60	C	9.00	58.00
2	0	27	84.4		-.10	-.18	-.14	-.26		5.67	41.85
TOTAL		32									

83 − 67

ITEM NUMBER 12

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	7	21.9		-.12	-.09	-.17	-.12		5.29	40.86
C 1	1	1	3.1	C	.29	.24	.72	.60	C	9.00	58.00
2	0	24	75.0		.00	-.01	.00	-.02		5.75	42.62
TOTAL		32									

85 − 59

ITEM NUMBER 13

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	12	37.5		-.36	-.19	-.45	-.24		4.83	39.92
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	20	62.5		.36	.19	.45	.24		6.30	44.40
TOTAL		32									

256 − 138

ITEM NUMBER 14

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	14	43.8		-.36	-.25	-.46	-.31		4.93	39.57
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	18	56.3		.36	.25	.46	.31		6.39	45.17
TOTAL		32									

388 − 269

ITEM NUMBER 15

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	15	46.9		-.20	-.07	-.25	-.09		5.33	41.87
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	17	53.1		.20	.07	.25	.09		6.12	43.47
TOTAL		32									

913 − 408

145

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 6 SUBTRACTION ALGORITHM

146

ITEM NUMBER 16

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	16	50.0		-.19	-.02	-.23	-.03		5.37	42.44
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	16	50.0		.19	.02	.23	.03		6.12	43.00
TOTAL		32									

846 − 393

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	18	56.3		-.20	-.14	-.26	-.18		5.39	41.28
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	14	43.8		.20	.14	.26	.18		6.21	44.57
TOTAL		32									

929 − 743

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	19	59.4		-.04	-.07	-.05	-.09		5.68	42.05
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	13	40.6		.04	.07	.05	.09		5.85	43.69
TOTAL		32									

726 − 186

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	23	71.9		.06	.02	.08	.03		5.83	42.87
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	9	28.1		-.06	-.02	-.08	-.03		5.56	42.33
TOTAL		32									

623 − 334

ITEM NUMBER 20

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	24	75.0		-.07	-.03	-.10	-.04		5.67	42.54
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	8	25.0		.07	.03	.10	.04		6.00	43.25
TOTAL		32									

872 − 586

TEST NO 1 ACHIEVEMENT MONITORING 7V SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 21

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	25	78.1		-.07	-.07	-.09	-.09		5.68	42.32
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	7	21.9		.07	.07	.09	.09		6.00	44.14
TOTAL		32									

COEFFICIENTS OF CORRELATION — MEANS

436 − 337

ITEM NUMBER 22

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	25	78.1		-.07	-.07	-.09	-.09		5.68	42.32
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	7	21.9		.07	.07	.09	.09		6.00	44.14
TOTAL		32									

COEFFICIENTS OF CORRELATION — MEANS

730 − 438

ITEM NUMBER 23

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	25	78.1		-.07	-.07	-.09	-.09		5.68	42.32
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	7	21.9		.07	.07	.09	.09		6.00	44.14
TOTAL		32									

COEFFICIENTS OF CORRELATION — MEANS

504 − 227

ITEM NUMBER 24

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	23	71.9		.23	.02	.31	.02		6.04	42.83
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	9	28.1		-.23	-.02	-.31	-.02		5.00	42.44
TOTAL		32									

COEFFICIENTS OF CORRELATION — MEANS

600 − 481

TEST NO 1 ACHIEVEMENT MONITORING TW SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
1	0	0	.0		.00	.00	.00	.00		.00	.00	
2	0	0	.0		.00	.00	.00	.00		.00	.00	Numerousness
C 3	1	31	100.0	C	.00	.00	.00	.00	C	9.03	41.32	Writes 0-99
4	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C 1	1	24	77.4	C	.36	.10	.50	.14	C	9.38	42.00	
2	0	1	3.2		-.32	-.15	-.77	-.36		6.00	31.00	Numerousness
3	0	3	9.7		-.32	-.22	-.55	-.39		7.33	32.67	Represents 0-99
4	0	3	9.7		-.01	.17	-.01	.30		9.00	48.00	
TOTAL		31										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	0	.0		.00	.00	.00	.00		.00	.00	
2	0	5	16.1		-.26	-.26	-.39	-.39		8.00	33.80	Problem Solving (A)
C 3	1	20	64.5	C	.59	.29	.76	.37	C	9.80	44.00	Add-part part whole 11-15
4	0	6	19.4		-.48	-.10	-.68	-.15		7.33	38.67	
TOTAL		31										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	15	48.4		.02	.41	.02	.51		9.07	46.67	
C 2	1	9	29.0	C	.35	-.10	.47	-.13	C	10.00	39.33	Problem Solving (A)
3	0	4	12.9		-.34	-.34	-.54	-.54		7.50	30.25	Subt-simple separating 0-99
4	0	3	9.7		-.19	-.18	-.33	-.27		8.00	35.33	
TOTAL		31										

					COEFFICIENTS OF CORRELATION					MEANS		
	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	1	0	0	.0	.00	.00	.00	.00		.00	.00	Problem Solving (B)
	2	0	0	.0	.00	.00	.00	.00		.00	.00	Add-simple joining 11-15
C	3	1	31	100.0	.00	.00	.00	.00	C	9.03	41.32	
	4	0	0	.0	.00	.00	.00	.00		.00	.00	
	TOTAL		31									

ITEM NUMBER 86

					COEFFICIENTS OF CORRELATION					MEANS		
	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
C	1	1	9	29.0	.23	-.09	.31	-.13	C	9.67	39.44	Problem Solving (B)
	2	0	14	45.2	-.09	.16	-.11	.20		8.86	43.57	Subt-part part whole-addend
	3	0	2	6.5	.30	-.02	.58	-.03		11.00	40.50	0-99
	4	0	6	19.4	-.34	-.08	-.48	-.12		7.83	39.17	
	TOTAL		31									

ITEM NUMBER 87

					COEFFICIENTS OF CORRELATION					MEANS		
	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
C	1	1	31	100.0	.00	.00	.00	.00	C	9.03	41.32	
	2	0	0	.0	.00	.00	.00	.00		.00	.00	Order, Place Value
	3	0	0	.0	.00	.00	.00	.00		.00	.00	Ordering 0-99
	4	0	0	.0	.00	.00	.00	.00		.00	.00	
	TOTAL		31									

ITEM NUMBER 88

					COEFFICIENTS OF CORRELATION					MEANS		
	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	1	0	2	6.5	.07	.00	.14	.01		9.50	41.50	
	2	0	20	64.5	.17	.02	.22	.03		9.25	41.55	Order, Place Value
C	3	1	6	19.4	.08	.05	.12	.07	C	9.33	42.67	Place Value 0-99
	4	0	3	9.7	-.44	-.11	-.76	-.19		6.67	37.00	
	TOTAL											

					COEFFICIENTS OF CORRELATION					MEANS		
	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	1	0	7	22.6	-.32	-.14	-.44	-.19		8.00	38.14	
C	2	1	22	71.0	.58	.35	.77	.46	C	9.68	44.14	Sentence Writing (A)
	3	0	0	.0	.00	.00	.00	.00		.00	.00	Subt-comparison 11-15
	4	0	2	6.5	-.53	-.41	-1.03	-.80		5.50	21.50	
	TOTAL		31									

150

ITEM NUMBER #10

					COEFFICIENTS OF CORRELATION					MEANS		
	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	1	0	1	3.2	-.11	.10	-.26	.24		8.00	48.90	
	2	0	2	6.5	-.00	.14	-.01	.27		9.00	48.00	Sentence Writing (A)
C	3	1	23	74.2	.39	-.01	.53	-.02	C	9.43	41.22	Add-part part whole 0-99
	4	0	5	16.1	-.41	-.12	-.61	-.18		7.40	37.80	
	TOTAL		31									

LERTAP 2.0 SUMMARY ITEM STATISTICS PAGE 18

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER #11

					COEFFICIENTS OF CORRELATION					MEANS		
	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	1	0	1	3.2	-.21	-.45	-.52	-1.11		7.00	10.00	
	2	0	1	3.2	-.11	.01	-.26	.02		8.00	42.00	Sentence Writing (B)
C	3	1	28	90.3	.44	.53	.72	.86	C	9.29	43.50	Add-simple joining 11-15
	4	0	1	3.2	-.42	-.44	-1.03	-1.07		5.00	11.00	
	TOTAL		31									

ITEM NUMBER #12

217

					COEFFICIENTS OF CORRELATION					MEANS		
	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	1	0	2	6.5	.07	.07	.14	.13		9.50	44.50	
C	2	1	13	41.9	.43	.26	.55	.32	C	9.92	45.15	Sentence Writing (B)
	3	0	14	45.2	-.20	-.08	-.25	-.11		8.64	40.14	Subt-join-addend 0-99
	4	0	2	6.5	-.53	-.41	-1.03	-.80		5.50	21.50	
	TOTAL		31									

218

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 13

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	3	9.7		.18	.03	.31	.05		10.00	42.33	
C	2	1	24	77.4	C	.23	.28	.32	.38	C	9.25	43.21	Algorithms
	3	0	1	3.2		-.21	-.22	-.52	-.54		7.00	26.00	Addition Algorithm
	4	0	3	9.7		-.38	-.28	-.66	-.49		7.00	30.33	
	TOTAL		31										

ITEM NUMBER 14

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C	1	1	9	29.0	C	.31	.27	.41	.36	C	9.89	46.67	
	2	0	14	45.2		.06	-.07	.07	-.09		9.14	40.29	Algorithms
	3	0	1	3.2		.10	-.11	.25	-.26		10.00	34.00	Subtraction Algorithm
	4	0	7	22.6		-.45	-.16	-.63	-.22		7.57	37.57	
	TOTAL		31										

LERTAP 2.0 — SUMMARY ITEM STATISTICS

TEST NO 1 ACHIEVEMENT MONITORING 7W — SUBTEST 2 SENTENCE WRITING FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	1	3.2		-.43	-.44	-1.05	-1.07		1.00	11.00	Sentence Writing
C 1	1	30	96.8	C	.43	.44	.83	.85	C	3.10	42.33	Subt-simple separating 11-15
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	Sentence Writing
C 1	1	11	35.5	C	.83	.59	1.07	.76	C	4.00	51.36	Subt-comparison 0-99
2	0	20	64.5		-.83	-.59	-1.07	-.76		2.50	35.80	
TOTAL		31										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.2		-.22	-.03	-.54	-.08		2.00	39.00	
C 1	1	28	90.3	C	.39	.10	.64	.17	C	3.14	41.75	Sentence Writing
2	0	2	6.5		-.31	-.10	-.61	-.20		2.00	36.50	Add-simple joining 0-99
TOTAL		31										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	Sentence Writing
C 1	1	25	80.6	C	.68	.58	.97	.83	C	3.32	44.92	Subt-part part whole-addend 11-15
2	0	6	19.4		-.68	-.58	-.98	-.84		1.83	26.33	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 3 ADDITION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	2	6.5		-.28	-.27	-.54	-.52		6.50	28.50
C 1	1	25	80.6	C	.80	.65	1.14	.93	C	10.64	45.36
2	0	4	12.9		-.74	-.57	-1.18	-.91		4.00	22.50
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS: 2 + 4

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	2	6.5		-.32	-.14	-.63	-.28		6.00	34.50
C 1	1	26	83.9	C	.81	.63	1.20	.93	C	10.54	44.81
2	0	3	9.7		-.74	-.66	-1.28	-1.15		3.00	15.67
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS: 6 + 3

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	2	6.5		-.37	-.15	-.72	-.30		5.50	34.00
C 1	1	26	83.9	C	.75	.61	1.11	.90	C	10.46	44.69
2	0	3	9.7		-.63	-.63	-1.09	-1.09		4.00	17.00
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS: 5 + 2

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	28	90.3	C	.51	.43	.84	.70	C	10.00	43.11
2	0	3	9.7		-.51	-.43	-.89	-.74		5.00	24.67
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS: 2 + 3

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	30	96.8	C	.54	.45	1.05	.87	C	9.80	42.37
2	0	1	3.2		-.54	-.45	-1.32	-1.11		1.00	10.00
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS: 5 + 0

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 3 ADDITION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	30	96.8	C	.54	.45	1.05	.87	C	9.80	42.37	1 + 3
2	0	1	3.2		-.54	-.45	-1.32	-1.11		1.00	10.00	
TOTAL		31										

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	28	90.3	C	.74	.66	1.21	1.09	C	10.21	44.07	9 + 2
2	0	3	9.7		-.74	-.66	-1.28	-1.15		3.00	15.67	
TOTAL		31										

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN	
0	0	1	3.2		-.22	-.11	-.55	-.26		6.00	34.00	
C 1	1	28	90.3	C	.51	.43	.84	.70	C	10.00	43.11	
2	0	2	6.5		-.46	-.44	-.89	-.86		4.50	20.00	6 + 6
TOTAL		31										

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN	
0	0	9	29.0		-.39	-.26	-.51	-.34		7.78	36.22	
C 1	1	18	58.1	C	.72	.61	.91	.76	C	11.28	47.83	4 + 7
2	0	4	12.9		-.54	-.54	-.86	-.86		5.50	23.50	
TOTAL		31										

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN	
0	0	9	29.0		-.36	-.18	-.48	-.24		7.89	37.78	
C 1	1	18	58.1	C	.61	.48	.77	.60	C	11.00	46.44	7 + 6
2	0	4	12.9		-.40	-.46	-.64	-.73		6.50	26.25	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 3 ADDITION FACTS

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	12	38.7		-.37	-.28	-.47	-.36		8.17	36.83	
C 1	1	15	48.4	C	.68	.57	.85	.71	C	11.53	48.73	9 + 7
2	0	4	12.9		-.47	-.44	-.75	-.69		6.00	27.00	
TOTAL		31										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	3	9.7		-.29	-.18	-.49	-.31		7.00	34.33	
C 1	1	23	74.2	C	.62	.46	.83	.63	C	10.57	44.78	6 + 4
2	0	5	16.1		-.51	-.41	-.76	-.61		6.20	29.60	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 1

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
	0	0	1	3.2		-.19	-.16	-.46	-.40		4.00	30.00	
C	1	1	28	90.3	C	.57	.63	.93	1.03	C	7.50	43.93	3 - 2
	2	0	2	6.5		-.55	-.64	-1.07	-1.25		1.00	10.50	
	TOTAL		31										

ITEM NUMBER 2

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	7	22.6		-.37	-.15	-.52	-.21		5.00	37.71	
C	1	1	22	71.0	C	.52	.33	.68	.44	C	7.91	44.00	6 - 4
	2	0	2	6.5		-.32	-.35	-.62	-.68		3.50	24.50	
	TOTAL		31										

ITEM NUMBER 3

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	1	3.2		-.25	-.13	-.62	-.33		3.00	32.00	
C	1	1	28	90.3	C	.61	.61	.99	1.00	C	7.54	43.86	9 - 1
	2	0	2	6.5		-.55	-.64	-1.07	-1.25		1.00	10.50	
	TOTAL		31										

ITEM NUMBER 4

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	2	6.5		-.32	-.26	-.62	-.50		3.50	29.00	
C	1	1	27	87.1	C	.64	.66	.98	1.01	C	7.67	44.52	7 - 3
	2	0	2	6.5		-.55	-.64	-1.07	-1.25		1.00	10.50	
	TOTAL		31										

ITEM NUMBER 5

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	3	9.7		-.23	-.16	-.39	-.28		5.00	35.00	
C	1	1	26	83.9	C	.55	.56	.81	.82	C	7.65	44.42	6 - 1
	2	0	2	6.5		-.55	-.64	-1.07	-1.25		1.00	10.50	
	TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	7	22.6		-.53	-.26	-.74	-.37		4.14	38.14	
C 1	1	20	64.5	C	.79	.59	1.02	.76	C	8.65	46.90	7 - 5
2	0	4	12.9		-.47	-.52	-.74	-.83		3.50	24.25	
TOTAL		31										

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	8	25.8		-.30	-.06	-.41	-.08		5.50	40.12	
C 1	1	20	64.5	C	.63	.44	.81	.57	C	8.30	45.45	10 - 4
2	0	3	9.7		-.57	-.63	-.98	-1.09		2.00	17.00	
TOTAL		31										

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	16	51.6		-.40	-.19	-.50	-.24		5.87	39.00	
C 1	1	8	25.8	C	.60	.31	.81	.42	C	9.87	48.00	13 - 9
2	0	7	22.6		-.16	-.10	-.22	-.14		6.14	39.00	
TOTAL		31										

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	20	64.5		-.13	-.09	-.16	-.11		6.70	40.50	
C 1	1	8	25.8	C	.45	.36	.60	.48	C	9.12	49.00	14 - 8
2	0	3	9.7		-.45	-.39	-.78	-.67		3.00	26.33	
TOTAL		31										

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	12	38.7		-.27	-.28	-.34	-.36		6.00	36.83	
C 1	1	11	35.5	C	.60	.61	.77	.78	C	9.27	51.73	11 - 7
2	0	8	25.8		-.35	-.35	-.48	-.48		5.25	33.75	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	16	51.6		-.19	-.04	-.24	-.05		6.44	40.81	
C 1	1	10	32.3	C	.49	.35	.64	.45	C	9.00	47.70	12 - 4
2	0	5	16.1		-.36	-.39	-.55	-.58		4.60	30.20	
TOTAL		31										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	18	58.1		-.31	-.09	-.39	-.12		6.22	40.33	
C 1	1	8	25.8	C	.47	.40	.64	.54	C	9.25	49.87	17 - 9
2	0	5	16.1		-.15	-.35	-.22	-.53		6.00	31.20	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	1	3.2		-.27	-.44	-.67	-1.07		.00	11.00
C 1	1	28	90.3	C	.39	.59	.64	.97	C	8.82	43.79
2	0	2	6.5		-.27	-.40	-.53	-.78		2.50	22.00
TOTAL		31									

ITEM DESCRIPTIONS: 51 + 27

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	1	3.2		-.27	-.44	-.67	-1.07		.00	11.00
C 1	1	28	90.3	C	.45	.63	.74	1.03	C	8.93	43.93
2	0	2	6.5		-.35	-.44	-.67	-.86		1.00	20.00
TOTAL		31									

40 + 48

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	2	6.5		-.27	-.42	-.53	-.82		2.50	21.00
C 1	1	27	87.1	C	.45	.63	.70	.98	C	9.07	44.41
2	0	2	6.5		-.35	-.44	-.67	-.86		1.00	20.00
TOTAL		31									

25 + 22

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	1	3.2		-.27	-.44	-.67	-1.07		.00	11.00
C 1	1	27	87.1	C	.45	.57	.70	.88	C	9.07	44.11
2	0	3	9.7		-.35	-.39	-.61	-.67		2.33	26.33
TOTAL		31									

362 + 205

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	1	3.2		-.27	-.44	-.67	-1.07		.00	11.00
C 1	1	28	90.3	C	.45	.63	.74	1.03	C	8.93	43.93
2	0	2	6.5		-.35	-.44	-.67	-.86		1.00	20.00
TOTAL		31									

417 + 212

159

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 5 ADDITION ALGORITHM

160

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.2		-.27	-.44	-.67	-1.07		.00	11.00
C 1	1	28	90.3	C	.45	.63	.74	1.03	C	8.93	43.93
2	0	2	6.5		-.35	-.44	-.67	-.86		1.00	20.00
TOTAL		31									

683 + 215

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.2		-.27	-.44	-.67	-1.07		.00	11.00
C 1	1	11	35.5	C	.74	.73	.95	.93	C	13.55	53.73
2	0	19	61.3		-.63	-.56	-.80	-.71		5.42	35.74
TOTAL		31									

64 + 7

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	2	6.5		-.25	-.47	-.49	-.92		3.00	18.50
C 1	1	11	35.5	C	.54	.57	.70	.74	C	12.09	51.09
2	0	18	58.1		-.40	-.32	-.51	-.40		6.28	37.89
TOTAL		31									

6 + 84

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	3	9.7		-.27	-.48	-.47	-.83		3.67	22.67
C 1	1	10	32.3	C	.71	.67	.93	.87	C	13.70	53.60
2	0	18	58.1		-.51	-.35	-.65	-.44		5.78	37.61
TOTAL		31									

7 + 59

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	3	9.7		-.27	-.48	-.47	-.83		3.67	22.67
C 1	1	8	25.8	C	.76	.71	1.03	.96	C	15.12	56.50
2	0	20	64.5		-.53	-.35	-.68	-.45		6.00	38.05
TOTAL		31									

19 + 44

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	3	9.7		-.17	-.30	-.29	-.52		5.33	29.67
C 1	1	6	19.4	C	.79	.65	1.13	.93	C	16.83	58.00
2	0	22	71.0		-.58	-.37	-.76	-.48		6.14	38.36
TOTAL		31									

56
+ 34

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	19.4		-.19	-.28	-.28	-.41		6.00	34.00
C 1	1	4	12.9	C	.84	.63	1.35	1.00	C	20.00	62.00
2	0	21	67.7		-.44	-.21	-.58	-.28		6.48	39.48
TOTAL		31									

59
+ 65

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	4	12.9		-.13	-.22	-.21	-.34		6.25	34.25
C 1	1	4	12.9	C	.84	.63	1.35	1.00	C	20.00	62.00
2	0	23	74.2		-.54	-.32	-.73	-.43		6.39	38.96
TOTAL		31									

104
+ 839

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	5	16.1		-.17	-.27	-.26	-.40		6.00	33.60
C 1	1	5	16.1	C	.83	.65	1.25	.97	C	18.40	60.00
2	0	21	67.7		-.52	-.30	-.68	-.39		6.19	38.71
TOTAL		31									

559
+ 236

ITEM NUMBER 15

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	9	29.0		-.25	-.34	-.33	-.45		6.00	34.56
C 1	1	5	16.1	C	.83	.65	1.25	.97	C	18.40	60.00
2	0	17	54.8		-.39	-.17	-.48	-.21		6.24	39.41
TOTAL		31									

328
+ 349

161

TEST NO 1 ACHIEVEMENT MONITORING TW SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	10	32.3		-.35	-.50	-.45	-.66		5.40	32.10
C 1	1	3	9.7	C	.82	.52	1.41	.89	C	21.67	61.33
2	0	18	58.1		-.16	.17	-.20	.21		7.39	43.11
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

431
+ 272

ITEM NUMBER 17

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	13	41.9		-.20	-.23	-.25	-.29		6.85	37.92
C 1	1	3	9.7	C	.60	.43	1.03	.74	C	18.00	58.00
2	0	15	48.4		-.15	-.03	-.19	-.04		7.27	40.93
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

594
+ 383

ITEM NUMBER 18

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	13	41.9		-.17	-.19	-.21	-.24		7.08	38.54
C 1	1	3	9.7	C	.82	.52	1.41	.89	C	21.67	61.33
2	0	15	48.4		-.32	-.12	-.40	-.15		6.33	39.73
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

482
+ 436

ITEM NUMBER 19

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	16	51.6		-.19	-.17	-.24	-.21		7.12	39.25
C 1	1	3	9.7	C	.82	.52	1.41	.89	C	21.67	61.33
2	0	12	38.7		-.30	-.14	-.38	-.18		6.08	39.08
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

347
+ 589

ITEM NUMBER 20

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	16	51.6		-.05	-.07	-.06	-.08		7.87	40.50
C 1	1	2	6.5	C	.75	.47	1.45	.92	C	23.50	64.00
2	0	13	41.9		-.32	-.17	-.41	-.21		6.08	38.85
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

188
+ 295

241

242

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 21

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	20	64.5		-.12	-.07	-.15	-.09		7.65	40.70
C 1	1	2	6.5	C	.75	.47	1.45	.92	C	23.50	64.00
2	0	9	29.0		-.28	-.18	-.37	-.24		5.78	37.67
TOTAL		31									

996
+ 317

ITEM NUMBER 22

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	24	77.4		-.27	-.18	-.38	-.25		7.33	40.08
C 1	1	2	6.5	C	.75	.47	1.45	.92	C	23.50	64.00
2	0	5	16.1		-.19	-.11	-.28	-.16		5.80	38.20
TOTAL		31									

69
34
+ 57

ITEM NUMBER 23

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	25	80.6		-.32	-.19	-.46	-.28		7.28	40.12
C 1	1	2	6.5	C	.75	.47	1.45	.92	C	23.50	64.00
2	0	4	12.9		-.17	-.12	-.27	-.19		5.75	37.50
TOTAL		31									

86
54
+ 46

ITEM NUMBER 24

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	26	83.9		-.30	-.13	-.44	-.19		7.42	40.62
C 1	1	2	6.5	C	.75	.47	1.45	.92	C	23.50	64.00
2	0	3	9.7		-.25	-.23	-.43	-.40		4.00	32.33
TOTAL		31									

95
99
+ 78

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	2	6.5		-.47	-.37	-.93	-.72		.50	23.50
C 1	1	26	83.9	C	.58	.47	.86	.69	C	5.23	43.92
2	0	3	9.7		-.33	-.28	-.57	-.48		2.33	30.67
TOTAL		31									

ITEM DESCRIPTIONS: 94 − 60

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	3	9.7		-.47	-.62	-.82	-1.07		1.33	17.33
C 1	1	24	77.4	C	.52	.48	.72	.67	C	5.29	44.62
2	0	4	12.9		-.23	-.06	-.37	-.09		3.25	39.50
TOTAL		31									

78 − 64

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	5	16.1		-.62	-.64	-.93	-.97		1.40	22.80
C 1	1	23	74.2	C	.68	.64	.92	.86	C	5.57	46.09
2	0	3	9.7		-.23	-.15	-.41	-.25		3.00	35.67
TOTAL		31									

48 − 21

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	7	22.6		-.62	-.53	-.87	-.74		2.00	28.86
C 1	1	22	71.0	C	.77	.59	1.02	.78	C	5.77	46.09
2	0	2	6.5		-.36	-.18	-.70	-.36		1.50	32.50
TOTAL		31									

634 − 523

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	7	22.6		-.69	-.59	-.96	-.82		1.71	27.57
C 1	1	20	64.5	C	.80	.57	1.02	.74	C	6.00	46.70
2	0	4	12.9		-.28	-.09	-.44	-.14		3.00	38.50
TOTAL		31									

582 − 232

245

246

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	7	22.6		-.69	-.59	-.96	-.82		1.71	27.57
C 1	1	17	54.8	C	.71	.63	.89	.79	C	6.12	48.53
2	0	7	22.6		-.15	-.16	-.21	-.22		4.00	37.57
TOTAL		31									

998
- 676

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	5	16.1		-.54	-.67	-.82	-1.01		1.80	22.00
C 1	1	5	16.1	C	.37	.21	.56	.32	C	6.60	47.40
2	0	21	67.7		.13	.36	.17	.47		4.86	44.48
TOTAL		31									

63
- 4

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.49	-.52	-.66	-.71		2.75	30.12
C 1	1	2	6.5	C	.38	.35	.75	.68	C	8.00	58.00
2	0	21	67.7		.25	.31	.33	.40		5.05	44.00
TOTAL		31									

95
- 7

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	5	16.1		-.47	-.50	-.70	-.75		2.20	27.00
C 1	1	4	12.9	C	.52	.35	.83	.55	C	7.75	52.75
2	0	22	71.0		-.01	.18	-.01	.19		4.64	42.50
TOTAL		31									

77
- 8

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.46	-.53	-.62	-.72		2.87	29.87
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	23	74.2		.46	.53	.61	.72		5.26	45.30
TOTAL		31									

31
- 15

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 6 SUBTRACTION ALGORITHM

166

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	11	35.5		-.59	-.54	-.76	-.69		2.82	32.18
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	20	64.5		.59	.54	.76	.69		5.65	46.35
TOTAL		31									

77
- 29

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	10	32.3		-.46	-.46	-.61	-.60		3.10	32.90
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	21	67.7		.46	.46	.60	.60		5.38	45.33
TOTAL		31									

72
- 63

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	10	32.3		-.53	-.51	-.68	-.67		2.90	31.90
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	21	67.7		.53	.51	.68	.67		5.48	45.81
TOTAL		31									

453
- 215

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	9	29.0		-.40	-.49	-.53	-.65		3.22	31.56
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	22	71.0		.40	.49	.52	.65		5.23	45.32
TOTAL		31									

950
- 219

ITEM NUMBER 15

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	11	35.5		-.44	-.49	-.57	-.63		3.27	33.00
C 1	1	1	3.2	C	.43	.33	1.04	.80	C	10.00	64.00
2	0	19	61.3		.28	.36	.36	.46		5.16	44.95
TOTAL		31									

243

994
- 336

250

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	10	32.3		-.49	-.54	-.64	-.71		3.00	31.40
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	21	67.7		.49	.54	.64	.70		5.43	46.05
TOTAL		31									

746 − 584

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	12	38.7		-.40	-.56	-.50	-.71		3.50	32.42
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	19	61.3		.40	.56	.50	.71		5.37	46.95
TOTAL		31									

914 − 540

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	15	48.4		-.53	-.60	-.66	-.75		3.40	33.53
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	16	51.6		.53	.60	.66	.75		5.81	48.62
TOTAL		31									

677 − 393

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	16	51.6		-.49	-.52	-.61	-.65		3.56	34.94
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	15	48.4		.49	.52	.61	.65		5.80	48.13
TOTAL		31									

428 − 289

ITEM NUMBER 20

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	16	51.6		-.37	-.54	-.47	-.67		3.81	34.75
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	15	48.4		.37	.54	.47	.67		5.53	48.33
TOTAL		31									

661 − 462

TEST NO 1 ACHIEVEMENT MONITORING 7W SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 21

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	19	61.3		-.44	-.56	-.56	-.71		3.84	35.74
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	12	38.7		.44	.56	.56	.71		5.92	50.17
TOTAL		31									

COEFFICIENTS OF CORRELATION MEANS

685 − 596

ITEM NUMBER 22

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	21	67.7		-.44	-.60	-.57	-.79		3.95	36.05
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	10	32.3		.44	.60	.57	.79		6.10	52.40
TOTAL		31									

COEFFICIENTS OF CORRELATION MEANS

620 − 545

ITEM NUMBER 23

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	21	67.7		-.44	-.60	-.57	-.79		3.95	36.05
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	10	32.3		.44	.60	.57	.79		6.10	52.40
TOTAL		31									

COEFFICIENTS OF CORRELATION MEANS

701 − 599

ITEM NUMBER 24

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	19	61.3		-.35	-.47	-.45	-.60		4.00	36.58
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	12	38.7		.35	.47	.45	.60		5.67	48.83
TOTAL		31									

COEFFICIENTS OF CORRELATION MEANS

400 − 276

ADMINISTRATION TIME: A2

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 16

TEST NO 1 ACHIEVEMENT MONITORING 8U — SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 1

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
	1	0	1	2.9		-.15	-.21	-.39	-.54		9.00	33.00	
C	2	1	28	82.4	C	.26	.17	.38	.24	C	11.14	49.75	Numerousness
	3	0	5	14.7		-.21	-.08	-.32	-.12		9.80	46.40	Writes 0-99
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		34										

ITEM NUMBER 2

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	0	.0		.00	.00	.00	.00		.00	.00	
	2	0	0	.0		.00	.00	.00	.00		.00	.00	Numerousness
C	3	1	34	100.0	C	.00	.00	.00	.00	C	10.88	48.76	Represents 0-99
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		34										

ITEM NUMBER 3

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	0	.0		.00	.00	.00	.00		.00	.00	
	2	0	1	2.9		-.40	-.23	-1.00	-.57		6.00	32.00	Problem Solving (A)
C	3	1	32	94.1	C	.40	.21	.71	.37	C	11.09	49.44	Subt-simple separating 11-15
	4	0	1	2.9		-.15	-.06	-.39	-.16		9.00	44.00	
	TOTAL		34										

ITEM NUMBER 4

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C	1	1	26	76.5	C	.42	.45	.58	.61	C	11.38	51.96	
	2	0	1	2.9		-.15	-.09	-.39	-.23		9.00	42.00	Problem Solving (A)
	3	0	5	14.7		-.33	-.37	-.50	-.56		9.20	37.40	Subt-comparison 0-99
	4	0	2	5.9		-.16	-.19	-.32	-.38		9.50	39.00	
	TOTAL		34										

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	1	0	2	5.9		-.40	-.23	-.79	-.46		7.50	37.00	
	2	0	0	.0		.00	.00	.00	.00		.00	.00	Problem Solving (B)
C	3	1	32	94.1	C	.40	.23	.71	.41	C	11.09	49.50	Subt-join-addend 11-15
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		34										

ITEM NUMBER 126

COEFFICIENTS OF CORRELATION — MEANS

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
C	1	1	27	79.4	C	.28	.28	.39	.39	C	11.19	50.59	
	2	0	6	17.6		-.23	-.20	-.33	-.30		9.83	43.17	Problem Solving (B)
	3	0	0	.0		.00	.00	.00	.00		.00	.00	Add-simple joining 0-99
	4	0	1	2.9		-.15	-.21	-.39	-.54		9.00	33.00	
	TOTAL		34										

170

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 17

TEST NO 1 ACHIEVEMENT MONITORING 8U — SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 87

COEFFICIENTS OF CORRELATION — MEANS

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	1	0	1	2.9		-.15	-.06	-.39	-.16		9.00	44.00	
	2	0	4	11.8		-.32	-.26	-.52	-.42		9.00	39.75	
C	3	1	28	82.4	C	.44	.30	.64	.44	C	11.32	50.57	Order, Place Value
	4	0	0	.0		.00	.00	.00	.00		.00	.00	Ordering 0-99
	OTHER	0	1	2.9		-.23	-.13	-.59	-.33		8.00	39.00	
	TOTAL		34										

ITEM NUMBER 88

257

COEFFICIENTS OF CORRELATION — MEANS

258

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	1	0	20	58.8		-.19	-.18	-.23	-.23		10.55	46.80	
C	2	1	6	17.6	C	.57	.49	.83	.72	C	13.50	62.33	Order, Place Value
	3	0	3	8.8		-.03	.08	-.06	.14		10.67	52.00	Place Value 0-99
	4	0	5	14.7		-.33	-.33	-.50	-.51		9.20	38.40	
	TOTAL		34										

ITEM NUMBER #9

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	0	.0		.00	.00	.00	.00		.00	.00	
C	2	1	34	100.0	C	.00	.00	.00	.00	C	10.88	48.76	Sentence Writing (A)
	3	0	0	.0		.00	.00	.00	.00		.00	.00	Add-part part whole 11-15
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		34										

ITEM NUMBER #10

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	2	5.9		-.40	-.21	-.79	-.42		7.50	38.00	
	2	0	1	2.9		-.23	-.17	-.59	-.44		8.00	36.00	Sentence Writing (A)
C	3	1	31	91.2	C	.47	.28	.78	.46	C	11.19	49.87	Subt-simple separating 0-99
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		34										

ITEM NUMBER #11

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	1	2.9		-.23	-.17	-.59	-.44		8.00	36.00	
	2	0	18	52.9		-.60	-.39	-.76	-.49		9.67	44.06	Sentence Writing (B)
C	3	1	14	41.2	C	.72	.51	.91	.65	C	12.71	56.64	Subt-join-addend 11-15
	4	0	1	2.9		-.07	-.17	-.18	-.44		10.00	36.00	
	TOTAL		34										

ITEM NUMBER #12

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	7	20.6		-.55	-.21	-.78	-.30		8.57	43.43	
C	2	1	25	73.5	C	.65	.40	.88	.54	C	11.72	51.88	Sentence Writing (B)
	3	0	2	5.9		-.28	-.39	-.56	-.79		8.50	28.50	Subt-part part whole-addend
	4	0	0	.0		.00	.00	.00	.00		.00	.00	0-99
	TOTAL		34										

TEST NO 1 ACHIEVEMENT MONITORING BU SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
1	0	3	8.8		-.42	-.40	-.74	-.72		8.00	32.00
C 2	1	29	85.3	C	.48	.46	.72	.70	C	11.31	51.24
3	0	1	2.9		-.23	-.17	-.59	-.44		8.00	36.00
4	0	1	2.9		-.07	-.12	-.18	-.30		10.00	40.00
TOTAL		34									

Algorithms
Addition Algorithm

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
1	0	3	8.8		-.32	-.20	-.57	-.35		8.67	40.67
2	0	3	8.8		-.32	-.23	-.57	-.40		8.67	39.33
C 3	1	24	70.6	C	.51	.50	.67	.66	C	11.58	52.92
4	0	4	11.8		-.15	-.33	-.25	-.54		10.00	37.00
TOTAL		34									

Algorithms
Subtraction Algorithm

LERTAP 2.0 SUMMARY ITEM STATISTICS

TEST NO 1 ACHIEVEMENT MONITORING BU SUBTEST 2 SENTENCE WRITING FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	18	52.9	C	.88	.60	1.10	.76	C	3.61	56.11
2	0	16	47.1		-.88	-.60	-1.10	-.76		1.94	40.50
TOTAL		34									

ITEM DESCRIPTIONS
Sentence Writing
Subt-comparison 11-15

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	32	94.1	C	.08	-.02	.15	-.04	C	2.84	48.69
2	0	2	5.9		-.08	.02	-.17	.05		2.50	50.00
TOTAL		34									

Sentence Writing
Add-part part whole 0-99

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	3	8.8		-.16	.15	-.28	.27		2.33	55.00
C 1	1	14	41.2	C	.84	.62	1.07	.78	C	3.79	58.29
2	0	17	50.0		-.74	-.69	-.93	-.87		2.12	39.82
TOTAL		34									

Sentence Writing
Subt-join-addend 0-99

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	1	2.9		-.33	-.04	-.84	-.09		1.00	46.00
C 1	1	32	94.1	C	.35	.07	.62	.13	C	2.91	49.00
2	0	1	2.9		-.15	-.06	-.38	-.16		2.00	44.00
TOTAL		34									

Sentence Writing
Add-simple joining 11-15

LERTAP 2.0

TEST NO 1 ACHIEVEMENT MONITORING BU

SUMMARY ITEM STATISTICS

SUBTEST 3 ADDITION FACTS

174

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	34	100.0	C	.00	.00	.00	.00	C	9.32	48.76	1 + 5
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		34										

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	1	2.9		-.02	-.13	-.06	-.33		9.00	39.00	
C 1	1	33	97.1	C	.02	.13	.04	.26	C	9.33	49.06	3 + 2
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		34										

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	33	97.1	C	.16	-.08	.32	-.16	C	9.39	48.58	4 + 4
2	0	1	2.9		-.16	.08	-.41	.21		7.00	55.00	
TOTAL		34										

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	4	11.8		-.56	-.48	-.92	-.78		5.50	32.00	
C 1	1	29	85.3	C	.66	.49	.99	.73	C	10.00	51.38	3 + 6
2	0	1	2.9		-.30	-.12	-.77	-.30		5.00	40.00	
TOTAL		34										

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	4	11.8		-.42	-.47	-.68	-.76		6.50	32.25	
C 1	1	29	85.3	C	.32	.33	.48	.50	C	9.66	50.55	4 + 3
2	0	1	2.9		.12	.19	.30	.49		11.00	63.00	
TOTAL		34										

TEST NO 1 ACHIEVEMENT MONITORING 80 SUBTEST 3 ADDITION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	33	97.1	C	.30	.24	.59	.47	C	9.45	49.30	6 + 2
2	0	1	2.9		-.30	-.24	-.77	-.61		5.00	31.00	
TOTAL		34										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	11	32.4		-.60	-.47	-.78	-.61		7.18	40.00	
C 1	1	20	58.8	C	.74	.52	.93	.66	C	10.85	54.40	5 + 8
2	0	3	8.8		-.29	-.13	-.52	-.23		7.00	43.33	
TOTAL		34										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	9	26.5		-.64	-.51	-.87	-.68		6.67	37.89	
C 1	1	22	64.7	C	.86	.62	1.11	.79	C	10.91	54.64	6 + 9
2	0	3	8.8		-.46	-.25	-.81	-.45		5.67	38.33	
TOTAL		34										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	4	11.8		-.49	-.32	-.80	-.52		6.00	37.50	
C 1	1	24	70.6	C	.68	.35	.90	.46	C	10.42	51.67	2 + 3
2	0	6	17.6		-.40	-.15	-.59	-.22		7.17	44.67	
TOTAL		34										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	12	35.3		-.67	-.54	-.86	-.70		7.08	39.33	
C 1	1	20	58.8	C	.74	.56	.93	.71	C	10.85	54.80	5 + 7
2	0	2	5.9		-.18	-.07	-.37	-.15		7.50	45.00	
TOTAL		34										

TEST NO 1 ACHIEVEMENT MONITORING BU SUBTEST 3 ADDITION FACTS

176

ITEM NUMBER 11

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	10	29.4		-.66	-.66	-.87	-.88		6.80	35.50	
C 1	1	16	47.1	C	.57	.64	.71	.80	C	10.81	57.50	8 + 9
2	0	8	23.5		.04	-.04	.05	-.05		9.50	47.87	
TOTAL		34										

ITEM NUMBER 12

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	10	29.4		-.71	-.65	-.94	-.86		6.60	35.80	
C 1	1	24	70.6	C	.71	.65	.93	.86	C	10.46	54.17	3 + 8
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		34										

TEST NO 1 ACHIEVEMENT MONITORING 8U SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	34	100.0	C	.00	.00	.00	.00	C	7.88	48.76	5 - 1
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		34										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	2	5.9		-.39	-.38	-.78	-.77		3.50	29.00	
C 1	1	32	94.1	C	.39	.38	.69	.69	C	8.16	50.00	9 - 2
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		34										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	5	14.7		-.60	-.53	-.92	-.82		3.80	32.20	
C 1	1	28	82.4	C	.72	.51	1.04	.73	C	8.82	51.79	8 - 7
2	0	1	2.9		-.36	-.02	-.91	-.06		2.00	47.00	
TOTAL		34										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	3	8.8		-.57	-.32	-1.01	-.56		2.67	35.67	
C 1	1	31	91.2	C	.57	.32	.95	.53	C	8.39	50.03	5 - 3
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		34										

ITEM NUMBER 5

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	2.9		-.30	-.23	-.76	-.57		3.00	32.00	
C 1	1	31	91.2	C	.65	.37	1.07	.62	C	8.45	50.26	7 - 6
2	0	2	5.9		-.56	-.29	-1.13	-.57		1.50	34.00	
TOTAL		34										

TEST NO 1 ACHIEVEMENT MONITORING BU SUBTEST 6 SUBTRACTION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	8	23.5		-.64	-.36	-.88	-.50		4.62	40.37	
C 1	1	25	73.5	C	.68	.40	.91	.53	C	9.04	51.84	8 - 5
2	0	1	2.9		-.18	-.13	-.45	-.33		5.00	39.00	
TOTAL		34										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	11	32.4		-.61	-.49	-.80	-.64		5.36	39.55	
C 1	1	21	61.8	C	.59	.48	.75	.61	C	9.19	53.62	14 - 7
2	0	2	5.9		.01	-.01	.02	-.01		8.00	48.50	
TOTAL		34										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	10	29.4		-.75	-.49	-.99	-.65		4.60	38.90	
C 1	1	19	55.9	C	.65	.41	.82	.52	C	9.53	53.47	12 - 5
2	0	5	14.7		.05	.06	.07	.09		8.20	50.60	
TOTAL		34										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	19	55.9		-.64	-.56	-.81	-.71		6.26	42.32	
C 1	1	12	35.3	C	.64	.66	.82	.85	C	10.33	60.33	11 - 8
2	0	3	8.8		.05	-.13	.09	-.23		8.33	43.33	
TOTAL		34										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	18	52.9		-.72	-.46	-.91	-.57		5.94	43.22	
C 1	1	14	41.2	C	.71	.51	.90	.65	C	10.29	56.64	13 - 7
2	0	2	5.9		.05	-.10	.11	-.21		8.50	43.50	
TOTAL		34										

TEST NO 1 ACHIEVEMENT MONITORING 8U SUBTEST A SUBTRACTION FACTS

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	18	52.9		-.70	-.55	-.88	-.69		6.00	42.06	
C 1	1	13	38.2	C	.63	.59	.80	.75	C	10.15	58.38	12 - 9
2	0	3	8.8		.16	-.03	.28	-.06		9.33	47.33	
TOTAL		34										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	18	52.9		-.64	-.42	-.80	-.52		6.17	43.72	
C 1	1	8	23.5	C	.61	.51	.84	.70	C	11.00	60.50	15 - 8
2	0	8	23.5		.15	-.02	.20	-.02		8.62	48.37	
TOTAL		34										

TEST NO 1 ACHIEVEMENT MONITORING BU SUBTEST 5 ADDITION ALGORITHM

180

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	2	5.9		-.40	-.45	-.81	-.91		4.00	25.50	
C 1	1	31	91.2	C	.50	.48	.84	.79	C	13.84	50.68	43
2	0	1	2.9		-.28	-.17	-.71	-.44		4.00	36.00	+ 25
TOTAL		34										

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	1	2.9		-.25	-.17	-.63	-.44		5.00	36.00	
C 1	1	31	91.2	C	.17	.04	.28	.07	C	13.26	48.94	14
2	0	2	5.9		-.02	.07	-.04	.15		12.50	52.50	+ 84
TOTAL		34										

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	1	2.9		-.28	-.38	-.71	-.95		4.00	21.00	
C 1	1	33	97.1	C	.28	.38	.55	.73	C	13.24	49.61	52
2	0	0	.0		.00	.00	.00	.00		.00	.00	+ 45
TOTAL		34										

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	4	11.8		-.57	-.53	-.94	-.87		4.25	30.00	
C 1	1	28	82.4	C	.58	.46	.84	.67	C	14.46	51.54	614
2	0	2	5.9		-.16	-.02	-.31	-.05		9.50	47.50	+ 384
TOTAL		34										

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	4	11.8		-.57	-.53	-.94	-.87		4.25	30.00	
C 1	1	27	79.4	C	.56	.46	.79	.68	C	14.56	51.81	132
2	0	3	8.8		-.15	-.06	-.26	-.10		10.33	46.33	+ 551
TOTAL		34										

271

278

TEST NO 1 ACHIEVEMENT MONITORING BU SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
C	0	4	11.8		-.57	-.53	-.94	-.87		4.25	30.00
C 1	1	27	79.4	C	.51	.39	.72	.55	C	14.41	51.33
2	0	3	8.8		-.07	.05	-.13	.08		11.67	50.67
TOTAL		34									

503 + 293

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	1	2.9		-.25	-.17	-.63	-.44		5.00	36.00
C 1	1	29	85.3	C	.39	.28	.58	.41	C	13.86	50.24
2	0	4	11.8		-.29	-.21	-.48	-.35		8.50	41.25
TOTAL		34									

56 + 6

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	5	14.7		-.61	-.50	-.94	-.77		4.80	33.20
C 1	1	28	82.4	C	.64	.46	.92	.67	C	14.61	51.54
2	0	1	2.9		-.16	.00	-.39	.01		8.00	49.00
TOTAL		34									

29 + 8

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	2	5.9		-.34	-.21	-.68	-.42		5.50	38.00
C 1	1	30	88.2	C	.41	.31	.64	.48	C	13.80	50.20
2	0	2	5.9		-.22	-.21	-.45	-.42		8.00	38.00
TOTAL		34									

6 + 85

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	5	14.7		-.43	-.37	-.67	-.57		7.20	37.20
C 1	1	25	73.5	C	.67	.52	.90	.69	C	15.20	52.76
2	0	4	11.8		-.44	-.30	-.72	-.49		6.25	38.25
TOTAL		34									

38 + 45

181

279

280

TEST NO 1 ACHIEVEMENT MONITORING 8U SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 11

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	4	11.8		-.51	-.38	-.83	-.61		5.25	35.50
C 1	1	26	76.5	C	.60	.51	.82	.70	C	14.81	52.42
2	0	4	11.8		-.28	-.30	-.45	-.49		8.75	38.25
TOTAL		34									

29 + 32

ITEM NUMBER 12

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	10	29.4		-.58	-.48	-.77	-.64		8.00	39.10
C 1	1	13	38.2	C	.60	.70	.77	.90	C	17.23	60.31
2	0	11	32.4		-.06	-.26	-.08	-.34		12.45	43.91
TOTAL		34									

98 + 72

ITEM NUMBER 13

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	8	23.5		-.62	-.54	-.86	-.74		6.75	36.25
C 1	1	10	29.4	C	.75	.55	.99	.72	C	19.40	59.70
2	0	16	47.1		-.15	-.04	-.19	-.05		12.06	48.19
TOTAL		34									

167 + 426

ITEM NUMBER 14

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	9	26.5		-.59	-.52	-.79	-.70		7.56	37.67
C 1	1	9	26.5	C	.66	.53	.90	.71	C	19.11	60.11
2	0	16	47.1		-.07	-.01	-.09	-.01		12.56	48.62
TOTAL		34									

727 + 213

ITEM NUMBER 15

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	10	29.4		-.63	-.64	-.83	-.85		7.60	35.90
C 1	1	8	23.5	C	.73	.58	1.00	.79	C	20.25	62.12
2	0	16	47.1		-.05	.10	-.06	.12		12.69	50.12
TOTAL		34									

409 + 383

281

282

TEST NO 1 ACHIEVEMENT MONITORING 8U SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	10	29.4		-.66	-.59	-.87	-.79		7.30	36.90
C 1	1	16	47.1	C	.71	.59	.89	.74	C	17.12	56.81
2	0	8	23.5		-.12	-.05	-.17	-.08		11.75	47.50
TOTAL		34									

155 + 792

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	11	32.4		-.65	-.59	-.85	-.77		7.73	37.73
C 1	1	16	47.1	C	.71	.71	.89	.89	C	17.12	58.50
2	0	7	20.6		-.12	-.19	-.16	-.28		11.71	43.86
TOTAL		34									

671 + 176

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	10	29.4		-.59	-.56	-.78	-.75		7.90	37.50
C 1	1	18	52.9	C	.69	.62	.86	.78	C	16.56	56.28
2	0	6	17.6		-.19	-.14	-.28	-.20		10.67	45.00
TOTAL		34									

334 + 484

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	12	35.3		-.60	-.56	-.77	-.73		8.50	38.92
C 1	1	9	26.5	C	.60	.48	.81	.65	C	18.56	59.11
2	0	13	38.2		.04	.12	.05	.15		13.23	50.69
TOTAL		34									

479 + 479

ITEM NUMBER 20

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	15	44.1		-.58	-.52	-.73	-.66		9.33	41.20
C 1	1	10	29.4	C	.80	.62	1.05	.82	C	19.80	61.20
2	2	9	26.5		-.17	-.06	-.22	-.08		11.44	47.56
TOTAL		34									

338 + 595

TEST NO 1 ACHIEVEMENT MONITORING 8U SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 21

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	20	58.8		-.66	-.67	-.84	-.85		9.90	41.55
C 1	1	4	11.8	C	.56	.53	.92	.87	C	21.50	67.50
2	0	10	29.4		.32	.35	.42	.46		15.70	55.70
TOTAL		34									

ITEM NUMBER 22

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	25	73.5		-.72	-.70	-.97	-.94		10.56	43.36
C 1	1	4	11.8	C	.50	.42	.81	.69	C	20.50	63.75
2	0	5	14.7		.45	.48	.70	.75		19.00	63.80
TOTAL		34									

ITEM NUMBER 23

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	26	76.5		-.73	-.66	-1.00	-.91		10.73	44.04
C 1	1	7	20.6	C	.67	.56	.95	.80	C	20.29	63.00
2	0	1	2.9		.22	.31	.56	.79		20.00	72.00
TOTAL		34									

ITEM NUMBER 24

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	27	79.4		-.67	-.62	-.94	-.88		11.07	44.67
C 1	1	2	5.9	C	.27	.22	.55	.44	C	19.00	60.00
2	0	5	14.7		.59	.57	.90	.87		20.80	66.40
TOTAL		34									

864
+ 658

59
49
+ 37

21
33
+ 59

86
27
+ 98

TEST NO 1 ACHIEVEMENT MONITORING 8U

SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	1	2.9		-.37	-.13	-.94	-.33		.00	39.00
C 1	1	29	85.3	C	.75	.51	1.12	.76	C	5.59	51.48
2	0	4	11.8		-.62	-.49	-1.02	-.80		1.00	31.50
TOTAL		34									

ITEM DESCRIPTIONS

87
- 51

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	4	11.8		-.42	-.42	-.69	-.68		2.25	34.00
C 1	1	26	76.5	C	.57	.57	.92	.78	C	5.73	52.85
2	0	4	11.8		-.46	-.33	-.76	-.54		2.00	37.00
TOTAL		34									

79
- 43

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	4	11.8		-.46	-.35	-.76	-.57		2.00	36.50
C 1	1	25	73.5	C	.76	.59	1.02	.80	C	5.92	52.36
2	0	5	14.7		-.53	-.42	-.81	-.65		2.00	35.60
TOTAL		34									

98
- 25

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	4	11.8		-.70	-.51	-1.15	-.83		.50	30.75
C 1	1	28	82.4	C	.76	.60	1.10	.86	C	5.68	52.32
2	0	2	5.9		-.26	-.27	-.53	-.54		2.50	35.00
TOTAL		34									

915
- 411

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	6	17.6		-.69	-.60	-1.01	-.89		1.50	32.00
C 1	1	26	76.5	C	.76	.57	1.05	.78	C	5.85	52.85
2	0	2	5.9		-.26	-.05	-.53	-.11		2.50	46.00
TOTAL		34									

293
- 140

TEST NO 1 ACHIEVEMENT MONITORING BU SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 6

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	7	20.6		-.68	-.64	-.96	-.91		1.86	32.57
C	1	1	23	67.6	C	.66	.50	.85	.68	C	5.91	53.22
	2	0	4	11.8		-.10	.08	-.17	.13		4.25	51.50
	TOTAL		34									

868 − 443

ITEM NUMBER 7

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	6	17.6		-.15	-.11	-.21	-.15		4.17	45.83
C	1	1	2	5.9	C	.45	.41	.91	.83	C	9.00	70.00
	2	0	26	76.5		-.12	-.13	-.16	-.18		4.73	47.81
	TOTAL		34									

53 − 9

ITEM NUMBER 8

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	8	23.5		-.28	-.18	-.38	-.25		3.75	44.62
C	1	1	2	5.9	C	.45	.41	.91	.83	C	9.00	70.00
	2	0	24	70.6		.02	-.05	.03	-.06		4.92	48.37
	TOTAL		34									

34 − 6

ITEM NUMBER 9

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	10	29.4		-.25	-.26	-.33	-.35		4.00	43.50
C	1	1	2	5.9	C	.45	.41	.91	.83	C	9.00	70.00
	2	0	22	64.7		.02	.05	.02	.06		4.91	49.23
	TOTAL		34									

67 − 8

ITEM NUMBER 10

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	5	14.7		-.20	-.15	-.30	-.23		3.80	44.20
C	1	1	2	5.9	C	.45	.45	.91	.90	C	9.00	72.00
	2	0	27	79.4		-.09	-.13	-.13	-.19		4.70	47.89
	TOTAL		34									

70 − 39

289 290

186

TEST NO 1 ACHIEVEMENT MONITORING 8U SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	7	20.6		-.36	-.36	-.51	-.51		3.29	39.71
C 1	1	1	2.9	C	.24	.31	.60	.79	C	8.00	72.00
2	0	26	76.5		.25	.22	.34	.30		5.19	50.31
TOTAL		34									

53 − 34

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	9	26.5		-.29	-.23	-.39	-.31		3.78	43.89
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	25	73.5		.29	.23	.39	.30		5.28	50.52
TOTAL		34									

83 − 27

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	14	41.2		-.25	-.22	-.31	-.27		4.21	45.43
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	20	58.8		.25	.22	.31	.27		5.35	51.10
TOTAL		34									

864 − 225

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	17	50.0		-.28	-.35	-.36	-.43		4.24	44.29
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	17	50.0		.28	.35	.36	.43		5.53	53.24
TOTAL		34									

774 − 529

ITEM NUMBER 15

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	16	47.1		-.26	-.29	-.33	-.36		4.25	44.81
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	18	52.9		.26	.29	.33	.36		5.44	52.28
TOTAL		34									

952 − 843

291

187

292

TEST NO 1 ACHIEVEMENT MONITORING 8U SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	17	50.0		-.23	-.26	-.29	-.32		4.35	45.47
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	17	50.0		.23	.26	.29	.32		5.41	52.06
TOTAL		34									

614 − 384

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	22	64.7		-.34	-.37	-.43	-.48		4.32	45.23
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	12	35.3		.34	.37	.43	.48		5.92	55.25
TOTAL		34									

929 − 536

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	21	61.8		-.15	-.29	-.19	-.37		4.62	45.86
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	13	38.2		.15	.29	.19	.37		5.31	53.46
TOTAL		34									

639 − 243

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	22	64.7		-.12	-.19	-.15	-.24		4.68	46.95
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	12	35.3		.12	.19	.15	.24		5.25	52.08
TOTAL		34									

824 − 628

ITEM NUMBER 2-

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	26	76.5		-.18	-.33	-.25	-.46		4.65	46.38
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	8	23.5		.18	.33	.25	.46		5.63	56.50
TOTAL		34									

942 − 595

TEST NO 1 ACHIEVEMENT MONITORING 8U SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 21

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	26	76.5		-.18	-.33	-.25	-.46		4.65	46.38
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	8	23.5		.18	.33	.25	.46		5.63	56.50
TOTAL		34									

328 − 169

ITEM NUMBER 22

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	25	73.5		-.15	-.25	-.20	-.34		4.68	46.80
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	9	26.5		.15	.25	.20	.34		5.44	54.22
TOTAL		34									

710 − 469

ITEM NUMBER 23

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	29	85.3		-.17	-.25	-.25	-.38		4.72	47.41
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	5	14.7		.17	.25	.26	.39		5.80	56.60
TOTAL		34									

803 − 427

ITEM NUMBER 24

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	28	82.4		.01	-.12	.01	-.18		4.89	48.04
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	6	17.6		-.01	.12	-.01	.18		4.83	52.17
TOTAL		34									

600 − 212

189

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
C 1	1	26	83.9	C	.23	.27	.35	.40	C	9.62	49.65	
2	0	4	12.9		-.28	-.39	-.45	-.61		7.50	33.25	
3	0	0	.0		.00	.00	.00	.00		.00	.00	Numerousness
4	0	1	3.2		.05	.16	.11	.40		10.00	61.00	Writes 0-99
TOTAL		31										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	1	3.2		-.03	.06	-.06	.16		9.00	53.00	
C 2	1	26	83.9	C	.41	.46	.60	.68	C	9.81	50.85	Numerousness
3	0	1	3.2		-.24	-.37	-.59	-.91		6.00	18.00	Represents 0-99
4	0	3	9.7		-.35	-.39	-.60	-.67		6.67	30.67	
TOTAL		31										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C 1	1	24	77.4	C	.65	.47	.90	.64	C	10.25	51.58	
2	0	3	9.7		-.22	.05	-.38	.09		7.67	50.33	
3	0	2	6.5		-.35	-.54	-.68	-1.05		6.00	18.00	Problem Solving (A)
4	0	2	6.5		-.50	-.32	-.98	-.63		4.50	30.00	Comparison 11-15
TOTAL		31										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	0	.0		.00	.00	.00	.00		.00	.00	
2	0	3	9.7		-.43	-.49	-.75	-.85		6.00	26.00	
C 3	1	25	80.6	C	.65	.58	.92	.82	C	10.16	52.04	Problem Solving (A)
4	0	3	9.7		-.43	-.28	-.75	-.49		6.00	35.33	Add-part part whole 0-99
TOTAL		31										

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	2	6.5		-.50	-.50	-.98	-.98		4.50	20.00	
2	0	2	6.5		-.19	-.16	-.37	-.31		7.50	39.00	Problem Solving (B)
C 3	1	24	77.4	C	.59	.47	.82	.65	C	10.17	51.62	Subt-part part whole-addend
4	0	3	9.7		-.26	-.12	-.45	-.20		7.33	42.67	11-15
TOTAL		31										

ITEM NUMBER 126

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C 1	1	22	71.0	C	.23	-.00	.30	-.01	C	9.73	47.86	
2	0	1	3.2		-.24	-.37	-.59	-.91		6.00	18.00	Problem Solving (B)
3	0	4	12.9		-.13	.11	-.21	.17		8.50	52.00	Subt-join-addend 0-99
4	0	4	12.9		-.05	.09	-.09	.15		9.00	51.50	
TOTAL		31										

ITEM NUMBER 57

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	3	9.7		-.13	-.09	-.23	-.15		8.33	44.00	
C 2	1	23	74.2	C	.43	.23	.58	.31	C	10.00	49.91	
3	0	3	9.7		-.39	-.25	-.67	-.43		6.33	36.67	Order, Place Value
4	0	2	6.5		-.14	-.01	-.27	-.01		8.00	47.50	Ordering 0-99
TOTAL		31										

ITEM NUMBER 58

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C 1	1	8	25.8	C	.24	.00	.32	.01	C	10.37	48.00	
2	0	6	19.4		-.20	.03	-.28	.04		8.33	48.67	
3	0	8	25.8		-.11	-.12	-.15	-.17		8.87	44.87	Order, Place Value
4	0	9	29.0		.05	.09	.07	.12		9.56	50.00	Place Value 0-99
TOTAL		31										

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
1	0	1	3.2		-.24	-.32	-.59	-.79		6.00	22.00	
C 2	1	30	96.8	C	.24	.32	.47	.63	C	9.47	48.77	
3	0	0	.0		.00	.00	.00	.00		.00	.00	Sentence Writing (A)
4	0	0	.0		.00	.00	.00	.00		.00	.00	Subt-simple separating 11-15
TOTAL		31										

ITEM NUMBER 8/10 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
1	0	19	61.3		-.62	-.53	-.79	-.67		8.11	41.79	
2	0	0	.0		.00	.00	.00	.00		.00	.00	Sentence Writing (A)
C 3	1	12	38.7	C	.62	.53	.79	.67	C	11.33	57.58	Subt-comparison 0-99
4	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

192

ITEM NUMBER 8/11 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
1	0	12	38.7		-.40	-.43	-.51	-.54		8.08	40.08	
2	0	1	3.2		-.17	-.09	-.42	-.21		7.00	41.00	Sentence Writing (B)
C 3	1	17	54.8	C	.61	.56	.77	.71	C	10.76	55.35	Subt-part part whole-addend
4	0	1	3.2		-.46	-.32	-1.12	-.79		3.00	22.00	11-15
TOTAL		31										

ITEM NUMBER 8/12 — COEFFICIENTS OF CORRELATION — MEANS

301

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
1	0	1	3.2		-.17	-.09	-.42	-.21		7.00	41.00	
C 2	1	28	90.3	C	.52	.44	.85	.72	C	9.79	50.00	Sentence Writing (B)
3	0	1	3.2		-.24	-.32	-.59	-.79		6.00	22.00	Add-simple joining 0-99
4	0	1	3.2		-.46	-.32	-1.12	-.79		3.00	22.00	
TOTAL		31										

302

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C 1	1	24	77.4	C	.65	.60	.90	.83	C	10.25	52.67	
2	0	3	9.7		-.35	-.36	-.60	-.63		6.67	31.67	Algorithms
3	0	1	3.2		-.03	-.05	-.06	-.12		9.00	44.00	Addition Algorithm
4	0	2	6.5		-.50	-.32	-.98	-.63		4.50	30.00	
OTHER	0	1	3.2		-.24	-.32	-.59	-.79		6.00	22.00	
TOTAL		31										

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	22	71.0		.12	.08	.16	.10		9.55	48.64	
2	0	2	6.5		-.09	-.03	-.17	-.05		8.50	46.50	Algorithms
C 3	1	1	3.2	C	.26	.14	.64	.34	C	13.00	59.00	Subtraction Algorithm
4	0	6	19.4		-.20	-.14	-.28	-.20		8.33	43.83	
TOTAL		31										

LERTAP 2.0 SUMMARY ITEM STATISTICS

TEST NO 1 ACHIEVEMENT MONITORING BV SUBTEST 2 SENTENCE WRITING FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	31	100.0	C	.00	.00	.00	.00	C	3.10	47.90
2	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS

Sentence Writing
Add-part part whole 11-15

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	28	90.3	C	.55	.10	.89	.17	C	3.25	48.39
2	0	3	9.7		-.55	-.10	-.94	-.18		1.67	43.33
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

Sentence Writing
Subt-simple separating 0-99

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	20	64.5	C	.71	.63	.92	.81	C	3.55	54.75
2	0	11	35.5		-.71	-.63	-.92	-.81		2.27	35.45
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

Sentence Writing
Subt-part part whole-addend 0-99

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	17	54.8	C	.71	.07	.89	.09	C	3.65	48.88
2	0	14	45.2		-.71	-.07	-.89	-.09		2.43	46.71
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

Sentence Writing
Subt-join-addend 11-15

TEST NO 1 ACHIEVEMENT MONITORING BV SUBTEST 3 ADDITION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	1	3.2		-.52	-.37	-1.27	-.91		.00	18.00	
C 1	1	28	90.3	C	.52	.45	.85	.73	C	9.68	50.04	3 + 1
2	0	2	6.5		-.26	-.27	-.50	-.52		6.00	33.00	
TOTAL		31										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.2		-.52	-.37	-1.27	-.91		.00	18.00	
C 1	1	30	96.8	C	.52	.37	1.00	.72	C	9.43	48.90	2 + 5
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.2		-.52	-.37	-1.27	-.91		.00	18.00	
C 1	1	30	96.8	C	.52	.37	1.00	.72	C	9.43	48.90	1 + 6
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	29	93.5	C	.58	.50	1.02	.88	C	9.62	49.83	7 + 2
2	0	2	6.5		-.58	-.50	-1.13	-.98		2.00	20.00	
TOTAL		31										

ITEM NUMBER 5

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	3	9.7		-.49	-.31	-.84	-.54		4.33	34.00	
C 1	1	26	83.9	C	.62	.39	.91	.57	C	10.00	50.38	2 + 6
2	0	2	6.5		-.34	-.20	-.66	-.40		5.00	36.50	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING BV SUBTEST 3 ADDITION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	6	19.4		-.81	-.69	-1.16	-.99		3.83	27.33	
C 1	1	25	80.6	C	.81	.69	1.15	.98	C	10.40	52.84	3 + 5
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		31										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	9	29.0		-.49	-.45	-.65	-.60		6.67	37.56	
C 1	1	20	64.5	C	.76	.71	.98	.91	C	10.95	55.55	4 + 8
2	0	2	6.5		-.58	-.54	-1.13	-1.05		2.00	18.00	
TOTAL		31										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	9	29.0		-.78	-.67	-1.03	-.88		5.22	32.67	
C 1	1	20	64.5	C	.76	.65	.98	.83	C	10.95	54.90	3 + 7
2	0	2	6.5		-.05	-.03	-.10	-.05		8.50	46.50	
TOTAL		31										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	6	19.4		-.70	-.58	-1.01	-.84		4.50	30.50	
C 1	1	23	74.2	C	.82	.64	1.11	.87	C	10.70	53.43	5 + 9
2	0	2	6.5		-.34	-.20	-.66	-.40		5.00	36.50	
TOTAL		31										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	15	48.4		-.68	-.56	-.85	-.71		6.87	39.40	
C 1	1	15	48.4	C	.70	.58	.88	.73	C	11.47	56.67	6 + 8
2	0	1	3.2		-.06	-.05	-.16	-.12		8.00	44.00	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 3 ADDITION FACTS

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	10	32.3		-.82	-.60	-1.07	-.78		5.30	35.20	
C 1	1	19	61.3	C	.79	.64	1.01	.81	C	11.16	55.32	8 + 7
2	0	2	6.5		-.01	-.12	-.02	-.24		9.00	41.00	
TOTAL		31										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	11	35.5		-.57	-.48	-.74	-.62		6.64	38.45	
C 1	1	18	58.1	C	.74	.67	.94	.84	C	11.17	56.17	4 + 9
2	0	2	6.5		-.38	-.40	-.74	-.79		4.50	25.50	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	30	96.8	C	.38	.37	.73	.72	C	7.83	46.90	7 - 1
2	0	1	3.2		-.38	-.37	-.93	-.91		1.00	18.00	
TOTAL		31										

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	1	3.2		-.38	-.37	-.93	-.91		1.00	18.00	
C 1	1	29	93.5	C	.42	.37	.74	.65	C	7.97	49.31	8 - 4
2	0	1	3.2		-.21	-.14	-.51	-.33		4.00	37.00	
TOTAL		31										

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	2	6.5		-.46	-.23	-.90	-.45		2.00	35.00	
C 1	1	28	90.3	C	.58	.42	.94	.68	C	8.21	49.89	9 - 5
2	0	1	3.2		-.32	-.37	-.79	-.91		2.00	18.00	
TOTAL		31										

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	6	19.4		-.45	-.49	-.65	-.71		4.67	33.17	
C 1	1	20	64.5	C	.71	.60	.92	.77	C	9.30	54.40	7 - 4
2	0	5	16.1		-.44	-.25	-.66	-.37		4.40	39.60	
TOTAL		31										

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	10	32.3		-.61	-.46	-.79	-.60		4.80	38.10	
C 1	1	18	58.1	C	.74	.52	.93	.65	C	9.61	54.33	8 - 6
2	0	3	9.7		-.27	-.13	-.46	-.23		5.00	42.00	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	3	9,7		-,37	-,16	-,64	-,28		4,00	40,67	
C 1	1	25	80,6	C	,71	,43	1,01	,62	C	8,72	51,00	4 - 3
2	0	3	9,7		-,58	-,42	-,99	-,72		2,00	29,33	
TOTAL		31										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	6	19,4		-,48	-,17	-,69	-,24		4,50	42,83	
C 1	1	21	67,7	C	,61	,38	,79	,50	C	8,95	51,76	
2	0	4	12,9		-,29	-,33	-,45	-,53		5,25	35,25	11 - 2
TOTAL		31										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	16	51,6		-,54	-,36	-,68	-,45		5,94	42,81	
C 1	1	11	35,5	C	,70	,45	,90	,58	C	10,64	56,73	
2	0	4	12,9		-,19	-,10	-,31	-,16		6,00	44,00	13 - 8
TOTAL		31										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	17	54,8		-,46	-,41	-,57	-,51		6,29	42,53	
C 1	1	12	38,7	C	,64	,54	,81	,69	C	10,17	57,92	12 - 7
2	0	2	6,5		-,34	-,26	-,66	-,50		3,50	33,50	
TOTAL		31										

ITEM NUMBER 1[illegible]

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	12	38,7		-,65	-,46	-,83	-,59		5,00	39,42	
C 1	1	12	38,7	C	,78	,56	,99	,71	C	10,75	58,17	15 - 9
2	0	7	22,6		-,15	-,11	-,21	-,16		6,71	44,86	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 4 SUBTRACTION FACTS

200

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	6	19.4		-.55	-.43	-.80	-.61		4.00	35.17	
C 1	1	20	64.5	C	.71	.66	.92	.85	C	9.30	55.05	10 - 2
2	0	5	16.1		-.33	-.40	-.50	-.60		5.20	34.60	
TOTAL		31										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	15	48.4		-.41	-.28	-.51	-.35		6.27	43.73	
C 1	1	10	32.3	C	.45	.43	.59	.57	C	9.70	57.10	16 - 7
2	0	6	19.4		-.02	-.16	-.02	-.24		7.50	43.00	
TOTAL		31										

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	2	6.5		-.35	-.29	-.69	-.56		5.50	32.00
C 1	1	29	93.5	C	.35	.29	.62	.50	C	14.17	49.00
2	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		31									

ITEM DESCRIPTIONS: 53 + 34

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	30	96.8	C	.14	.02	.27	.05	C	13.77	47.97
2	0	1	3.2		-.14	-.02	-.34	-.06		9.00	46.00
TOTAL		31									

30 + 21

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	1	3.2		-.14	-.02	-.34	-.06		9.00	46.00
C 1	1	29	93.5	C	-.02	-.18	-.03	-.32	C	13.59	47.21
2	0	1	3.2		.16	.28	.40	.68		19.00	70.00
TOTAL		31									

27 + 62

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	1	3.2		-.35	-.37	-.86	-.91		2.00	18.00
C 1	1	27	87.1	C	.41	.32	.63	.49	C	14.56	49.70
2	0	3	9.7		-.25	-.14	-.43	-.24		9.00	41.67
TOTAL		31									

503 + 293

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	2	6.5		-.48	-.50	-.95	-.98		2.50	20.00
C 1	1	25	80.6	C	.35	.38	.50	.54	C	14.64	50.60
2	0	4	12.9		-.06	-.08	-.09	-.12		12.75	45.00
TOTAL		31									

265 + 314

319

320

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 6

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
	0	0	3	9.7		-.49	-.43	-.84	-.74		4.67	28.67
C	1	1	26	83.9	C	.38	.38	.56	.56	C	14.62	50.35
	2	0	2	6.5		.02	-.05	.03	-.10		14.00	45.00
	TOTAL		31									

332 + 246

ITEM NUMBER 7

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
	0	0	4	12.9		-.52	-.58	-.83	-.92		5.50	26.00
C	1	1	24	77.4	C	.73	.68	1.01	.94	C	16.00	53.25
	2	0	3	9.7		-.45	-.30	-.78	-.52		5.33	34.33
	TOTAL		31									

7 + 56

ITEM NUMBER 8

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
	0	0	3	9.7		-.47	-.39	-.81	-.67		5.00	30.67
C	1	1	23	74.2	C	.70	.60	.94	.80	C	16.09	53.04
	2	0	5	16.1		-.45	-.40	-.68	-.60		7.40	34.60
	TOTAL		31									

68 + 8

ITEM NUMBER 9

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
	0	0	4	12.9		-.61	-.74	-.98	-1.17		4.00	20.00
C	1	1	23	74.2	C	.55	.52	.74	.70	C	15.57	52.39
	2	0	4	12.9		-.10	.06	-.16	.09		12.00	50.00
	TOTAL		31									

79 + 7

ITEM NUMBER 10

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
	0	0	5	16.1		-.69	-.76	-1.03	-1.14		4.20	22.60
C	1	1	24	77.4	C	.73	.69	1.01	.95	C	16.00	53.33
	2	0	2	6.5		-.22	-.03	-.43	-.07		8.50	46.00
	TOTAL		31									

29 + 64

321

322

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	4	12.9		-.61	-.74	-.98	-1.17		4.00	20.00
C 1	1	22	71.0	C	.53	.60	.69	.79	C	15.64	53.50
2	0	5	16.1		-.09	-.07	-.13	-.10		12.40	45.60
TOTAL		31									

45 + 28

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	9	29.0		-.43	-.51	-.57	-.68		9.56	36.22
C 1	1	8	25.8	C	.59	.47	.80	.64	C	19.62	59.62
2	0	14	45.2		-.12	.05	-.16	.06		12.79	48.71
TOTAL		31									

77 + 95

ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	19.4		-.54	-.40	-.77	-.58		7.00	35.83
C 1	1	12	38.7	C	.71	.55	.90	.70	C	19.00	58.00
2	0	13	41.9		-.27	-.22	-.34	-.28		11.69	44.15
TOTAL		31									

426 + 458

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	9	29.0		-.69	-.60	-.92	-.79		7.11	34.22
C 1	1	14	45.2	C	.81	.58	1.02	.73	C	19.00	57.21
2	0	8	25.8		-.21	-.04	-.28	-.05		11.50	47.00
TOTAL		31									

239 + 653

ITEM NUMBER 15

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.61	-.55	-.83	-.74		7.37	34.38
C 1	1	15	48.4	C	.83	.59	1.05	.74	C	18.80	56.87
2	0	8	25.8		-.34	-.13	-.46	-.18		10.12	44.62
TOTAL		31									

115 + 875

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.61	-.55	-.83	-.74		7.37	34.38
C 1	1	16	51.6	C	.84	.56	1.05	.70	C	18.50	55.81
2	0	7	22.6		-.36	-.10	-.50	-.13		9.57	45.29
TOTAL		31									

174 + 642

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.61	-.55	-.83	-.74		7.37	34.38
C 1	1	15	48.4	C	.83	.61	1.05	.76	C	18.80	57.07
2	0	8	25.8		-.34	-.15	-.46	-.20		10.12	44.25
TOTAL		31									

583 + 241

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.70	-.68	-.94	-.92		6.50	31.12
C 1	1	17	54.8	C	.80	.70	1.01	.88	C	18.00	57.24
2	0	6	19.4		-.24	-.14	-.35	-.20		10.67	43.83
TOTAL		31									

186 + 570

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	25.8		-.42	-.47	-.56	-.63		9.38	36.37
C 1	1	10	32.3	C	.79	.60	1.03	.78	C	20.50	60.60
2	0	13	41.9		-.38	-.16	-.48	-.20		10.92	45.23
TOTAL		31									

263 + 459

ITEM NUMBER 20

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	12	38.7		-.39	-.55	-.49	-.70		10.67	37.83
C 1	1	9	29.0	C	.76	.64	1.01	.84	C	20.78	62.44
2	0	10	32.3		-.33	-.05	-.43	-.06		10.70	46.90
TOTAL		31									

359 + 265

204

325

326

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 21

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	13	41.9		-.33	-.47	-.41	-.59		11.31	39.85
C 1	1	4	12.9	C	.49	.36	.78	.58	C	21.25	61.75
2	0	14	45.2		-.01	.22	-.01	.28		13.57	51.43
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

ITEM NUMBER 22

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	18	58.1		-.40	-.52	-.51	-.65		11.56	41.50
C 1	1	7	22.6	C	.46	.55	.64	.77	C	18.71	62.86
2	0	6	19.4		.02	.06	.03	.09		13.83	49.67
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

ITEM NUMBER 23

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	18	58.1		-.40	-.52	-.51	-.65		11.56	41.50
C 1	1	7	22.6	C	.38	.43	.53	.59	C	17.86	59.43
2	0	6	19.4		.10	.19	.14	.28		14.83	53.67
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

ITEM NUMBER 24

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	21	67.7		-.56	-.62	-.73	-.80		11.29	41.67
C 1	1	6	19.4	C	.53	.47	.77	.68	C	20.17	62.00
2	0	4	12.9		.15	.31	.24	.49		16.00	59.50
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

767 + 434

19 64 + 58

67 25 + 22

58 98 + 85

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 6 SUBTRACTION ALGORITHM

206

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.2		-.36	-.32	-.89	-.79		.00	22.00
C 1	1	26	83.9	C	.77	.60	1.13	.89	C	5.96	51.77
2	0	4	12.9		-.65	-.49	-1.04	-.78		.75	29.25
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS

67
- 42

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.2		-.36	-.32	-.89	-.79		.00	22.00
C 1	1	25	80.6	C	.56	.56	.79	.79	C	5.80	51.88
2	0	5	16.1		-.43	-.44	-.64	-.66		2.60	33.20
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

56
- 25

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	2	6.5		-.42	-.50	-.82	-.98		1.00	20.00
C 1	1	26	83.9	C	.70	.51	1.03	.75	C	5.88	51.15
2	0	3	9.7		-.52	-.21	-.90	-.37		1.00	38.33
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

88
- 76

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	5	16.1		-.60	-.62	-.90	-.93		1.60	27.40
C 1	1	22	71.0	C	.88	.77	1.16	1.02	C	6.55	55.09
2	0	4	12.9		-.54	-.37	-.86	-.58		1.50	34.00
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

698
- 457

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	6	19.4		-.69	-.74	-.99	-1.07		1.50	25.83
C 1	1	20	64.5	C	.76	.63	.98	.81	C	6.55	54.70
2	0	5	16.1		-.26	-.02	-.38	-.03		3.60	47.20
TOTAL		31									

COEFFICIENTS OF CORRELATION — MEANS

482
- 231

329

330

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	19.4		-.69	-.74	-.99	-1.07		1.50	25.83
C 1	1	22	71.0	C	.85	.67	1.13	.89	C	6.50	54.18
2	0	3	9.7		-.39	-.04	-.68	-.07		2.00	46.00
TOTAL		31									

985 − 265

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	5	16.1		-.49	-.59	-.74	-.88		2.20	28.40
C 1	1	7	22.6	C	.52	.29	.72	.40	C	7.57	55.71
2	0	19	61.3		-.07	.19	-.09	.25		4.95	50.16
TOTAL		31									

32 − 5

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	5	16.1		-.49	-.59	-.74	-.88		2.20	28.40
C 1	1	5	16.1	C	.56	.57	.85	.86	C	8.40	67.00
2	0	21	67.7		-.05	.01	-.07	.01		5.00	48.00
TOTAL		31									

74 − 8

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	19.4		-.43	-.52	-.62	-.75		2.83	32.33
C 1	1	4	12.9	C	.51	.44	.81	.70	C	8.50	64.50
2	0	21	67.7		-.00	.13	-.00	.17		5.10	49.19
TOTAL		31									

61 − 5

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	10	32.3		-.27	-.37	-.35	-.48		4.10	40.10
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	21	67.7		.27	.37	.35	.48		5.57	51.62
TOTAL		31									

72 − 28

331

332

LERTAP 2.0

SUMMARY ITEM STATISTICS

TEST NO 1 ACHIEVEMENT MONITORING BV

SUBTEST 6 SUBTRACTION ALGORITHM

208

ITEM NUMBER 11

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	8	25.8		-.42	-.48	-.57	-.65		3.25	36.00
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	23	74.2		.42	.48	.57	.65		5.74	52.04
TOTAL		31									

MEANS

83 − 67

ITEM NUMBER 12

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	11	35.5		-.29	-.52	-.37	-.67		4.09	37.64
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	20	64.5		.29	.52	.37	.67		5.65	53.55
TOTAL		31									

MEANS

85 − 59

ITEM NUMBER 13

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	12	38.7		-.36	-.47	-.46	-.59		3.92	39.33
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	19	61.3		.36	.47	.46	.59		5.84	53.32
TOTAL		31									

MEANS

256 − 138

ITEM NUMBER 14

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	13	41.9		-.36	-.44	-.46	-.55		4.00	40.38
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	18	58.1		.36	.44	.46	.55		5.89	53.33
TOTAL		31									

MEANS

388 − 269

ITEM NUMBER 15

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	16	51.6		-.39	-.45	-.49	-.56		4.12	41.56
C 1	1	1	3.2	C	.35	.28	.85	.68	C	10.00	70.00
2	0	14	45.2		.27	.35	.34	.44		5.86	53.57
TOTAL		31									

MEANS

913 − 408

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	16	51.6		-.29	-.47	-.36	-.58		4.38	41.31
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	15	48.4		.29	.47	.36	.58		5.87	54.93
TOTAL		31									

846 − 393

ITEM NUMBER 17

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	17	54.8		-.27	-.44	-.34	-.55		4.47	42.12
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	14	45.2		.27	.44	.34	.55		5.86	54.93
TOTAL		31									

929 − 743

ITEM NUMBER 18

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	18	58.1		-.15	-.32	-.18	-.40		4.78	43.94
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	13	41.9		.15	.32	.18	.40		5.54	53.38
TOTAL		31									

726 − 186

ITEM NUMBER 19

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	19	61.3		-.23	-.37	-.29	-.47		4.63	43.63
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	12	38.7		.23	.37	.29	.47		5.83	54.67
TOTAL		31									

623 − 334

ITEM NUMBER 20

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	21	67.7		-.19	-.39	-.25	-.50		4.76	44.00
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	10	32.3		.19	.39	.25	.50		5.80	56.10
TOTAL		31									

872 − 586

TEST NO 1 ACHIEVEMENT MONITORING 8V SUBTEST 6 SUBTRACTION ALGORITHM

210

ITEM NUMBER 21

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	21	67.7		-.19	-.39	-.25	-.50		4.76	44.00
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	10	32.3		.19	.39	.25	.50		5.80	56.10
TOTAL		31									

436 − 337

ITEM NUMBER 22

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	21	67.7		-.32	-.53	-.42	-.69		4.52	42.57
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	10	32.3		.32	.53	.42	.69		6.30	59.10
TOTAL		31									

730 − 438

ITEM NUMBER 23

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	22	71.0		-.17	-.42	-.22	-.55		4.82	44.00
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	9	29.0		.17	.42	.22	.55		5.78	57.44
TOTAL		31									

504 − 227

ITEM NUMBER 24

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	20	64.5		-.37	-.54	-.47	-.69		4.40	42.10
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	11	35.5		.37	.54	.47	.69		6.36	58.45
TOTAL		31									

600 − 481

337

338

ADMINISTRATION TIME: A2

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 16

TEST NO 1 ACHIEVEMENT MONITORING 8W — SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 1

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
	1	0	0	.0		.00	.00	.00	.00		.00	.00	
	2	0	0	.0		.00	.00	.00	.00		.00	.00	Numerousness
C	3	1	30	100.0	C	.00	.00	.00	.00	C	9.87	53.80	Writes 0-99
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		30										

ITEM NUMBER 2

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C	1	1	30	100.0	C	.00	.00	.00	.00	C	9.87	53.80	
	2	0	0	.0		.00	.00	.00	.00		.00	.00	Numerousness
	3	0	0	.0		.00	.00	.00	.00		.00	.00	Represents 0-99
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		30										

ITEM NUMBER 3

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	0	.0		.00	.00	.00	.00		.00	.00	
	2	0	0	.0		.00	.00	.00	.00		.00	.00	Problem Solving (A)
C	3	1	29	96.7	C	.18	-.03	.36	-.06	C	9.93	53.72	Add-part part whole 11-15
	4	0	1	3.3		-.18	.03	-.45	.08		8.00	56.00	
	TOTAL		30										

ITEM NUMBER 4

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	21	70.0		-.32	-.17	-.42	-.22		9.48	52.43	
C	2	1	5	16.7	C	.56	.27	.83	.40	C	12.20	61.40	Problem Solving (A)
	3	0	2	6.7		-.19	-.08	-.38	-.11		8.50	51.00	Subt-simple separating 0-99
	4	0	2	6.7		-.05	-.04	-.10	-.07		9.50	52.00	
	TOTAL		30										

					COEFFICIENTS OF CORRELATION					MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
1	0	0	.0		.00	.00	.00	.00		.00	.00	
2	0	1	3.3		.01	.08	.03	.18		10.00	59.00	
C 3	1	29	96.7	C	-.01	-.08	-.03	-.15	C	9.86	53.62	Problem Solving (B)
4	0	0	.0		.00	.00	.00	.00		.00	.00	Add-simple joining 11-15
TOTAL		30										

ITEM NUMBER 126

					COEFFICIENTS OF CORRELATION					MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
C 1	1	4	13.3	C	.24	-.09	.37	-.14	C	11.00	51.00	
2	0	13	43.3		.21	.18	.26	.22		10.31	56.38	Problem Solving (B)
3	0	8	26.7		-.08	.02	-.10	.03		9.62	54.25	Subt-part part whole-addend
4	0	5	16.7		-.40	-.18	-.59	-.27		8.20	48.60	0-99
TOTAL		30										

212

LERTAP 2.0 SUMMARY ITEM STATISTICS PAGE 17

TEST NO 1 ACHIEVEMENT MONITORING BW SUBTEST I OBJECTIVES TEST

ITEM NUMBER 57

					COEFFICIENTS OF CORRELATION					MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
C 1	1	28	93.3	C	.19	.38	.34	.66	C	9.96	55.07	
2	0	0	.0		.00	.00	.00	.00		.00	.00	Order, Place Value
3	0	2	6.7		-.19	-.38	-.38	-.72		8.50	36.00	Ordering 0-99
4	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 58

					COEFFICIENTS OF CORRELATION					MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
1	0	3	10.0		.20	.14	.34	.23		11.00	59.00	
2	0	13	43.3		-.58	-.42	-.74	-.52		8.62	47.77	Order, Place Value
C 3	1	11	36.7	C	.57	.33	.73	.43	C	11.27	59.36	Place Value 0-99
4	0	3	10.0		-.15	.01	-.26	.02		9.00	54.33	
TOTAL		30										

341

342

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	8	26.7		-.60	-.40	-.81	-.54		8.00	45.37	
C 2	1	21	70.0	C	.69	.35	.91	.45	C	10.71	56.67	Sentence Writing (A)
3	0	1	3.3		-.28	.11	-.69	.26		7.00	61.00	Subt-comparison 11-15
4	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	1	3.3		-.28	.11	-.69	.26		7.00	61.00	
2	0	2	6.7		-.41	-.02	-.79	-.03		7.00	53.00	Sentence Writing (A)
C 3	1	27	90.0	C	.51	-.05	.83	-.08	C	10.19	53.89	Add-part part whole 0-99
4	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	1	3.3		-.28	-.28	-.69	-.67		7.00	35.00	
2	0	1	3.3		-.18	-.26	-.45	-.63		8.00	36.00	Sentence Writing (B)
C 3	1	28	93.3	C	.34	.39	.59	.68	C	10.04	55.11	Add-simple joining 11-15
4	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
1	0	2	6.7		-.12	-.06	-.24	-.11		9.00	51.00	
C 2	1	14	46.7	C	.67	.62	.84	.77	C	11.21	62.14	Sentence Writing (B)
3	0	8	26.7		-.36	-.61	-.48	-.82		8.75	41.00	Subt-join-addend 0-99
4	0	6	20.0		-.36	-.06	-.52	-.08		8.50	52.33	
TOTAL		30										

TEST NO 1 ACHIEVEMENT MONITORING BW SUBTEST 1 OBJECTIVES TEST

ITEM NUMBER 13

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	1	0	1	3.3		-.18	.05	-.45	.11		8.00	57.00	
C	2	1	29	96.7	C	.18	-.05	.36	-.09	C	9.93	53.69	Algorithms Addition Algorithm
	3	0	0	.0		.00	.00	.00	.00		.00	.00	
	4	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		30										

ITEM NUMBER 14

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
C	1	1	11	36.7	C	.64	.42	.82	.53	C	11.45	60.73	
	2	0	14	46.7		-.50	-.09	-.63	-.11		8.86	52.57	Algorithms Subtraction Algorithm
	3	0	3	10.0		-.21	-.51	-.36	-.88		8.67	34.33	
	4	0	2	6.7		.02	-.01	.04	-.01		10.00	53.50	
	TOTAL		30										

LERTAP 2.0 SUMMARY ITEM STATISTICS

TEST NO 1 ACHIEVEMENT MONITORING BW SUBTEST 2 SENTENCE WRITING FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	28	93.3	C	.59	.28	1.04	.49	C	3.21	54.75	Sentence Writing
2	0	2	6.7		-.59	-.28	-1.15	-.54		1.00	40.50	Subt-simple separating 11-15
TOTAL		30										

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	1	3.3		-.01	-.26	-.03	-.63		3.00	36.00	
C 1	1	14	46.7	C	.80	.69	1.00	.87	C	3.86	63.14	Sentence Writing
2	0	15	50.0		-.79	-.59	-.99	-.75		2.33	46.27	Subt-comparison 0-99
TOTAL		30										

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	30	100.0	C	.00	.00	.00	.00	C	3.07	53.80	Sentence Writing
2	0	0	.0		.00	.00	.00	.00		.00	.00	Add-simple joining 0-99
TOTAL		30										

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	20	66.7	C	.81	.21	1.05	.27	C	3.60	55.70	Sentence Writing
2	0	10	33.3		-.81	-.21	-1.05	-.27		2.00	50.00	Subt-part part whole-addend 11-15
TOTAL		30										

TEST NO 1 ACHIEVEMENT MONITORING BW SUBTEST 3 ADDITION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	2	6.7		-.51	-.36	-.99	-.70		6.50	36.50	
C 1	1	27	90.0	C	.76	.58	1.24	.95	C	11.22	56.26	2 + 4
2	0	1	3.3		-.57	-.47	-1.37	-1.13		4.00	22.00	
TOTAL		30										

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	2	6.7		-.63	-.51	-1.22	-.99		5.50	29.50	
C 1	1	27	90.0	C	.76	.56	1.24	.90	C	11.22	56.15	6 + 3
2	0	1	3.3		-.40	-.22	-.96	-.52		6.00	39.00	
TOTAL		30										

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	1	3.3		-.40	-.26	-.96	-.63		6.00	36.00	
C 1	1	28	93.3	C	.57	.34	1.00	.60	C	11.00	54.96	5 + 2
2	0	1	3.3		-.40	-.22	-.96	-.52		6.00	39.00	
TOTAL		30										

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	1	3.3		-.40	-.26	-.96	-.63		6.00	36.00	
C 1	1	27	90.0	C	.82	.56	1.32	.92	C	11.26	56.19	2 + 3
2	0	2	6.7		-.69	-.49	-1.34	-.95		5.00	30.50	
TOTAL		30										

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	30	100.0	C	.00	.00	.00	.00	C	10.67	53.80	5 + 0
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 3 ADDITION FACTS

ITEM NUMBER 6

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
	0	0	0	.0		.00	.00	.00	.00		.00	.00	
C	1	1	29	96.7	C	.31	.25	.60	.47	C	10.79	54.38	1 + 3
	2	0	1	3.3		-.31	-.25	-.76	-.60		7.00	37.00	
	TOTAL		30										

ITEM NUMBER 7

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
	0	0	1	3.3		-.57	-.47	-1.37	-1.13		4.00	22.00	
C	1	1	28	93.3	C	.69	.49	1.22	.86	C	11.07	55.46	9 + 2
	2	0	1	3.3		-.40	-.22	-.96	-.52		6.00	39.00	
	TOTAL		30										

ITEM NUMBER 8

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
	0	0	2	6.7		-.39	-.39	-.75	-.75		7.50	35.50	
C	1	1	28	93.3	C	.39	.39	.68	.68	C	10.89	55.11	6 + 6
	2	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		30										

ITEM NUMBER 9

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
	0	0	2	6.7		-.69	-.49	-1.34	-.95		5.00	30.50	
C	1	1	26	86.7	C	.57	.48	.87	.74	C	11.15	56.19	4 + 7
	2	0	2	6.7		-.08	-.16	-.16	-.32		10.00	46.00	
	TOTAL		30										

ITEM NUMBER 10

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
	0	0	7	23.3		-.89	-.70	-1.23	-.97		7.14	37.71	
C	1	1	20	66.7	C	.80	.55	1.04	.71	C	11.90	58.70	7 + 6
	2	0	3	10.0		.00	.13	.00	.22		10.67	58.67	
	TOTAL		30										

TEST NO 1 ACHIEVEMENT MONITORING 6W SUBTEST 3 ADDITION FACTS

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	6	20.0		-.69	-.52	-.98	-.74		7.67	40.67	
C 1	1	23	76.7	C	.67	.47	.93	.65	C	11.48	57.09	9 + 7
2	0	1	3.3		-.06	.05	-.14	.11		10.00	57.00	
TOTAL		30										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	3	10.0		-.51	-.39	-.87	-.67		7.33	39.00	
C 1	1	27	90.0	C	.51	.39	.83	.63	C	11.04	55.44	6 + 4
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	2	6.7		-.67	-.34	-1.29	-.66		2.00	37.50	
C 1	1	28	93.3	C	.67	.34	1.17	.60	C	9.18	54.96	3 - 2
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	1	3.3		-.53	-.26	-1.29	-.63		1.00	36.00	
C 1	1	27	90.0	C	.75	.56	1.22	.92	C	9.37	56.19	6 - 4
2	0	2	6.7		-.52	-.49	-1.00	-.95		3.50	30.50	
TOTAL		30										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	2	6.7		-.67	-.34	-1.29	-.66		2.00	37.50	
C 1	1	28	93.3	C	.67	.34	1.17	.60	C	9.18	54.96	9 - 1
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	3	10.0		-.30	-.34	-.50	-.58		6.33	41.00	
C 1	1	27	90.0	C	.30	.34	.48	.55	C	8.96	55.22	7 - 3
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 5

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	2	6.7		-.67	-.34	-1.29	-.66		2.00	37.50	
C 1	1	28	93.3	C	.67	.34	1.17	.60	C	9.18	54.96	6 - 1
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 4 SUBTRACTION FACTS

220

ITEM NUMBER 6

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	2	6.7		-.62	-.52	-1.20	-1.01		2.50	29.00	
C	1	1	27	90.0	C	.46	.34	.75	.55	C	9.11	55.22	7 - 5
	2	0	1	3.3		.09	.16	.22	.40		10.00	65.00	
	TOTAL		30										

ITEM NUMBER 7

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	2	6.7		-.52	-.30	-1.00	-.58		3.50	39.50	
C	1	1	27	90.0	C	.50	.33	.82	.53	C	9.15	55.19	10 - 4
	2	0	1	3.3		-.12	-.13	-.29	-.31		7.00	45.00	
	TOTAL		30										

ITEM NUMBER 8

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	11	36.7		-.64	-.50	-.82	-.63		6.45	45.55	
C	1	1	13	43.3	C	.73	.58	.92	.73	C	10.92	62.23	13 - 9
	2	0	6	20.0		-.13	-.12	-.19	-.18		8.00	50.67	
	TOTAL		30										

ITEM NUMBER 9

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	14	46.7		-.59	-.65	-.75	-.82		7.00	45.00	
C	1	1	12	40.0	C	.55	.52	.70	.66	C	10.50	61.83	14 - 8
	2	0	4	13.3		.08	.21	.13	.33		9.25	60.50	
	TOTAL		30										

ITEM NUMBER 10

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
	0	0	14	46.7		-.77	-.71	-.97	-.89		6.50	44.14	
C	1	1	16	53.3	C	.77	.71	.97	.89	C	10.62	62.25	11 - 7
	2	0	0	.0		.00	.00	.00	.00		.00	.00	
	TOTAL		30										

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 4 SUBTRACTION FACTS

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	11	36.7		-.86	-.46	-.72	-.59		6.73	46.18	
C 1	1	15	50.0	C	.41	.36	.52	.46	C	9.80	58.40	
2	0	4	13.3		.19	.11	.30	.18		10.00	57.50	12 - 4
TOTAL		30										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	15	50.0		-.74	-.57	-.92	-.71		6.73	46.60	
C 1	1	13	43.3	C	.70	.48	.88	.61	C	10.85	60.77	
2	0	2	6.7		.08	.18	.15	.35		9.50	62.50	17 - 9
TOTAL		30										

TEST NO 1 ACHIEVEMENT MONITORING 6W SUBTEST 5 ADDITION ALGORITHM

222

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	28	93.3	C	.23	.28	.41	.49	C	16.11	54.75
2	0	2	6.7		-.23	-.28	-.45	-.54		10.50	40.50
TOTAL		30									

ITEM DESCRIPTIONS: 51 + 27

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	30	100.0	C	.00	.00	.00	.00	C	15.73	53.80
2	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		30									

ITEM DESCRIPTIONS: 40 + 48

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	29	96.7	C	.45	.47	.87	.90	C	16.24	54.90
2	0	1	3.3		-.45	-.47	-1.10	-1.13		1.00	22.00
TOTAL		30									

ITEM DESCRIPTIONS: 25 + 22

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	29	96.7	C	.45	.47	.87	.90	C	16.24	54.90
2	0	1	3.3		-.45	-.47	-1.10	-1.13		1.00	22.00
TOTAL		30									

ITEM DESCRIPTIONS: 362 + 205

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	28	93.3	C	.36	.34	.64	.60	C	16.32	54.96
2	0	2	6.7		-.36	-.34	-.70	-.66		7.50	37.50
TOTAL		30									

361

ITEM DESCRIPTIONS: 417 + 212

362

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 6

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	0	.0		.00	.00	.00	.00		.00	.00
C	1	1	28	93.3	C	.48	.42	.83	.73	C	16.50	55.21
	2	0	2	6.7		-.48	-.42	-.92	-.81		5.00	34.00
	TOTAL		30									

683
+ 215

ITEM NUMBER 7

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	1	3.3		-.30	-.28	-.73	-.60		6.00	37.00
C	1	1	24	80.0	C	.75	.66	1.06	.94	C	18.00	58.00
	2	0	5	16.7		-.66	-.59	-.99	-.88		6.80	37.00
	TOTAL		30									

64
+ 7

ITEM NUMBER 8

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	0	.0		.00	.00	.00	.00		.00	.00
C	1	1	26	86.7	C	.68	.58	1.05	.89	C	17.35	56.69
	2	0	4	13.3		-.68	-.58	-1.08	-.92		5.25	35.00
	TOTAL		30									

6
+ 84

ITEM NUMBER 9

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	1	3.3		-.30	-.25	-.73	-.60		6.00	37.00
C	1	1	24	80.0	C	.64	.71	.91	1.00	C	17.67	58.29
	2	0	5	16.7		-.54	-.64	-.81	-.96		8.40	35.60
	TOTAL		30									

7
+ 59

ITEM NUMBER 10

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	0	.0		.00	.00	.00	.00		.00	.00
C	1	1	23	76.7	C	.75	.56	1.02	.77	C	18.22	57.74
	2	0	7	23.3		-.75	-.56	-1.03	-.78		7.57	40.86
	TOTAL		30									

19
+ 44

TEST NO 1 ACHIEVEMENT MONITORING BW SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 11

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	25	83.3	C	.74	.61	1.08	.89	C	17.72	57.24
2	0	5	16.7		-.74	-.61	-1.10	-.91		5.80	36.60
TOTAL		30									

56
+ 34

ITEM NUMBER 12

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.3		-.30	-.25	-.73	-.60		6.00	37.00
C 1	1	15	50.0	C	.62	.60	.78	.75	C	19.47	61.40
2	0	14	46.7		-.51	-.51	-.64	-.64		12.43	46.86
TOTAL		30									

59
+ 65

ITEM NUMBER 13

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	16	53.3	C	.77	.54	.96	.68	C	20.06	60.19
2	0	14	46.7		-.77	-.54	-.96	-.68		10.79	46.50
TOTAL		30									

104
+ 839

ITEM NUMBER 14

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.3		-.30	-.25	-.73	-.60		6.00	37.00
C 1	1	17	56.7	C	.80	.71	1.00	.90	C	19.94	61.71
2	0	12	40.0		-.70	-.63	-.88	-.80		10.58	44.00
TOTAL		30									

559
+ 236

ITEM NUMBER 15

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	17	56.7	C	.70	.66	.88	.83	C	19.41	61.06
2	0	13	43.3		-.70	-.66	-.88	-.83		10.92	44.31
TOTAL		30									

328
+ 349

365

366

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	2	6.7		-.25	-.25	-.49	-.48		10.00	42.00
C 1	1	20	66.7	C	.86	.73	1.11	.95	C	19.40	60.35
2	0	8	26.7		-.77	-.64	-1.04	-.86		8.00	40.37
TOTAL		30									

ITEM NUMBER 17

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	4	13.3		-.47	-.37	-.74	-.59		8.50	41.75
C 1	1	19	63.3	C	.85	.80	1.09	1.02	C	19.63	61.47
2	0	7	23.3		-.59	-.61	-.81	-.84		9.29	39.86
TOTAL		30									

ITEM NUMBER 18

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	3	10.0		-.35	-.28	-.60	-.47		9.33	43.33
C 1	1	20	66.7	C	.86	.73	1.11	.95	C	19.40	60.35
2	0	7	23.3		-.71	-.62	-.98	-.86		8.00	39.57
TOTAL		30									

ITEM NUMBER 19

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	6	20.0		-.41	-.40	-.58	-.57		10.83	43.67
C 1	1	12	40.0	C	.75	.52	.95	.66	C	21.25	61.83
2	0	12	40.0		-.42	-.19	-.53	-.24		12.67	50.83
TOTAL		30									

ITEM NUMBER 20

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEAN	TT MEAN
0	0	7	23.3		-.30	-.25	-.42	-.35		12.43	48.00
C 1	1	14	46.7	C	.77	.64	.97	.80	C	20.71	62.43
2	0	9	30.0		-.56	-.46	-.74	-.61		10.56	44.89
TOTAL		30									

431 + 272

594 + 383

482 + 436

347 + 589

188 + 295

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 5 ADDITION ALGORITHM

ITEM NUMBER 21

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	26.7		-.26	-.17	-.35	-.24		13.12	50.12
C 1	1	8	26.7	C	.63	.47	.84	.64	C	22.00	63.75
2	0	14	46.7		-.32	-.26	-.41	-.33		13.64	50.21
TOTAL		30									

996
+ 317

ITEM NUMBER 22

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	15	50.0		-.10	-.13	-.12	-.16		15.13	52.20
C 1	1	7	23.3	C	.43	.44	.59	.61	C	20.43	63.86
2	0	8	26.7		-.30	-.28	-.40	-.37		12.75	48.00
TOTAL		30									

69
34
+ 57

ITEM NUMBER 23

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	17	56.7		-.28	-.27	-.36	-.34		14.24	50.82
C 1	1	7	23.3	C	.43	.41	.59	.56	C	20.43	63.14
2	0	6	20.0		-.10	-.10	-.15	-.14		14.50	51.33
TOTAL		30									

86
54
+ 46

ITEM NUMBER 24

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	17	56.7		-.25	-.19	-.32	-.24		14.41	51.65
C 1	1	6	20.0	C	.45	.41	.64	.58	C	21.17	64.17
2	0	7	23.3		-.13	-.16	-.18	-.22		14.29	50.14
TOTAL		30									

95
99
+ 78

370

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	25	83.3	C	.20	.25	.29	.36	C	6.04	55.20
2	0	5	16.7		-.20	-.25	-.30	-.37		4.40	46.80
TOTAL		30									

ITEM DESCRIPTIONS: 94 − 60

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	27	90.0	C	.41	.35	.67	.56	C	6.19	55.26
2	0	3	10.0		-.41	-.35	-.70	-.59		2.00	40.67
TOTAL		30									

78 − 64

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	23	76.7	C	.37	.35	.51	.47	C	6.39	56.22
2	0	7	23.3		-.37	-.35	-.51	-.48		3.71	45.86
TOTAL		30									

48 − 21

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	1	3.3		-.17	-.13	-.41	-.31		3.00	45.00
C 1	1	26	86.7	C	.45	.40	.69	.61	C	6.31	55.77
2	0	3	10.0		-.41	-.37	-.70	-.64		2.00	39.67
TOTAL		30									

634 − 523

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	1	3.3		-.29	-.22	-.70	-.52		1.00	39.00
C 1	1	25	83.3	C	.49	.49	.72	.72	C	6.44	56.60
2	0	4	13.3		-.39	-.43	-.61	-.67		2.75	40.00
TOTAL		30									

582 − 232

227

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 6 SUBTRACTION ALGORITHM

228

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.3		-.29	-.22	-.70	-.52		1.00	39.00
C 1	1	23	76.7	C	.40	.48	.54	.66	C	6.43	57.17
2	0	6	20.0		-.29	-.41	-.41	-.59		4.00	43.33
TOTAL		30									

998 − 676

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.3		-.11	.03	-.26	.08		4.00	56.00
C 1	1	6	20.0	C	.61	.52	.87	.74	C	9.50	67.00
2	0	23	76.7		-.53	-.51	-.73	-.70		4.87	50.26
TOTAL		30									

63 − 4

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	3	10.0		-.05	.10	-.08	.17		5.33	57.67
C 1	1	3	10.0	C	.72	.51	1.23	.88	C	12.33	73.33
2	0	24	80.0		-.50	-.46	-.71	-.65		5.00	50.87
TOTAL		30									

95 − 7

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	4	13.3		-.03	.13	-.05	.21		5.50	58.00
C 1	1	3	10.0	C	.72	.48	1.23	.82	C	12.33	72.00
2	0	23	76.7		-.48	-.44	-.66	-.61		4.96	50.70
TOTAL		30									

77 − 8

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	3	10.0		-.05	.10	-.08	.17		5.33	57.67
C 1	1	1	3.3	C	.81	.43	1.95	1.04	C	19.00	83.00
2	0	26	86.7		-.38	-.32	-.59	-.48		5.31	82.23
TOTAL		30									

31 − 15

373

374

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 11

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	3	10.0		-.05	.10	-.08	.17		5.33	57.67
C	1	1	1	3.3	C	.81	.43	1.95	1.04	C	19.00	83.00
	2	0	26	86.7		-.38	-.32	-.59	-.48		5.31	52.23
	TOTAL		30									

77 − 29

ITEM NUMBER 12

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	4	13.3		-.07	.03	-.10	.05		5.25	54.75
C	1	1	3	10.0	C	.72	.48	1.23	.82	C	12.33	72.00
	2	0	23	76.7		-.46	-.36	-.63	-.50		5.00	51.26
	TOTAL		30									

72 − 63

ITEM NUMBER 13

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	4	13.3		-.19	-.02	-.31	-.04		4.25	53.00
C	1	1	1	3.3	C	.81	.43	1.95	1.04	C	19.00	83.00
	2	0	25	83.3		-.21	-.18	-.31	-.27		5.48	52.76
	TOTAL		30									

453 − 215

ITEM NUMBER 14

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	4	13.3		-.19	-.02	-.31	-.04		4.25	53.00
C	1	1	1	3.3	C	.81	.43	1.95	1.04	C	19.00	83.00
	2	0	25	83.3		-.21	-.18	-.31	-.27		5.48	52.76
	TOTAL		30									

950 − 219

ITEM NUMBER 15

	OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
	0	0	7	23.3		-.29	-.25	-.41	-.35		4.14	48.00
C	1	1	1	3.3	C	.81	.43	1.95	1.04	C	19.00	83.00
	2	0	22	73.3		-.05	.07	-.06	.09		5.68	54.32
	TOTAL		30									

994 − 336

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 16

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	20.0		-.15	-.06	-.22	-.08		4.83	52.33
C 1	1	1	3.3	C	.81	.43	1.95	1.04	C	19.00	83.00
2	0	23	76.7		-.20	-.13	-.27	-.17		5.43	52.91
TOTAL		30									

746 − 584

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	20.0		-.15	-.06	-.22	-.08		4.83	52.33
C 1	1	1	3.3	C	.81	.43	1.95	1.04	C	19.00	83.00
2	0	23	76.7		-.20	-.13	-.27	-.17		5.43	52.91
TOTAL		30									

914 − 540

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	8	26.7		-.20	-.11	-.27	-.15		4.75	51.50
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	22	73.3		.20	.11	.27	.15		6.14	54.64
TOTAL		30									

677 − 393

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	9	30.0		-.21	-.15	-.28	-.20		4.78	50.89
C 1	1	1	3.3	C	.81	.43	1.95	1.04	C	19.00	83.00
2	0	20	66.7		-.10	-.02	-.13	-.02		5.55	53.65
TOTAL		30									

428 − 289

ITEM NUMBER 20

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	11	36.7		-.10	-.04	-.13	-.05		5.36	53.18
C 1	1	1	3.3	C	.81	.43	1.95	1.04	C	19.00	83.00
2	0	18	60.0		-.20	-.12	-.25	-.15		5.28	52.56
TOTAL		30									

661 − 462

TEST NO 1 ACHIEVEMENT MONITORING 8W SUBTEST 6 SUBTRACTION ALGORITHM

ITEM NUMBER 21

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	12	40.0		.20	.12	.25	.15		6.50	55.67
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	18	60.0		-.20	-.12	-.25	-.15		5.28	52.56
TOTAL		30									

685 − 596

ITEM NUMBER 22

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	13	43.3		.20	.02	.25	.03		6.46	54.15
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	17	56.7		-.20	-.02	-.25	-.03		5.24	53.53
TOTAL		30									

620 − 545

ITEM NUMBER 23

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	16	53.3		.21	.02	.27	.03		6.37	54.06
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	14	46.7		-.21	-.02	-.27	-.03		5.07	53.50
TOTAL		30									

701 − 599

ITEM NUMBER 24

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	18	60.0		.18	.00	.23	.00		6.22	53.83
C 1	1	0	.0	C	.00	.00	.00	.00	C	.00	.00
2	0	12	40.0		-.18	-.00	-.23	-.00		5.08	53.75
TOTAL		30									

400 − 276

379

380

Appendix C

PERFORMANCE BY OBJECTIVE

FOR THE TWO SCHOOLS AND SIX CLASSES

NOTE: For those objectives for which there are three items, the number of subjects represented in the proportion correct at a particular test time is ascertained simply by summing the N's for the three forms; however, when there are more or less than three items, the N is increased or decreased proportionately.

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:

School 1

Description of Objectives	Objective			Composite Objective		
		Administration Time			Administration Time	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Numerousness						
writes 0-99	3	81.3	87.1			
represents 0-99	3	55.5	75.2	6	68.7	91.1
Ordering, Place Value						
ordering 0-99	3	49.1	77.4			
notation 0-99	3	14.5	21.0	6	31.8	49.2
Problem-Solving (Set A)						
subt-simple separating	2	57.5	56.1			
add-part part whole	2	55.6	87.2			
subt-comparison	2	56.1	65.9			
11-15	3	61.3	85.5			
0-99	3	51.6	53.2	6	56.5	69.4
Problem-Solving (Set B)						
subt-join-addend	2	71.3	81.8			
add-simple joining	2	82.5	90.2			
subt-part part whole-addend	2	31.2	43.6			
11-15	3	83.9	81.1			
0-99	3	53.0	58.1	6	66.9	72.6

Table (Continued)

Description of Objectives	Objective			Composite Objecti	
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration Tim A-1	A-2
Sentence-Writing (Set A)						
subt-simple separating	2	92.7	73.2			
add-part part whole	2	72.5	92.7			
subt-comparison	2	53.5	46.2			
11-15	3	85.5	87.1			
0-99	3	62.9	69.4	6	74.2	78.2
Sentence-Writing (Set B)						
subt-join-addend	2	40.0	34.2			
add-simple joining	2	86.1	81.2			
subt-part part whole-addend	2	73.2	56.8			
11-15	3	87.4	83.2			
0-99	3	64.5	64.5	6	66.1	68.9
Sentence-Writing (Free Response)						
add-simple joining	2	97.5	95.1			
subt-simple separating	2	97.7	87.2			
subt-part part whole-addend	2	72.1	56.4			
add-part part whole	2	91.6	91.7			
subt-comparison	2	37.5	36.6			
subt-join-addend	2	43.9	38.6			
Set A (as above)	6	78.2	74.2			
Set B (as above)[1]	6	71.0	62.9			
11-15	6	77.4	71.8			
0-99	6	71.8	65.3	12	74.6	68.6

[1]Although the problem types correspond to Set B, these free response problems have the same wording etc. as the intervie items; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective			Composite Object	
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration T A-1	A-2
Algorithms						
addition algorithm	3	45.4	82.3			
subtraction algorithm	3	41.9	37.1	6	45.2	59.7
Algorithms (Free Response) (Timed Test)						
2-digit addition algorithm	27	48.4	74.9			
3-digit addition algorithm	36	34.5	50.0			
3 addends	9	4.3	15.1	72	36.0	55.0
2-digit subtraction algorithm	27	30.1	29.8			
3-digit subtraction algorithm	45	15.2	14.0	72	20.8	19.9
Recall of Basic Facts (Speeded Test)						
add 0-20				36	75.7	75.7
subt 0-20				36	58.3	62.2

	Administration Time A-1	A-2
Form U N =	19	23
Form V N =	22	21
Form W N =	21	18

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:

School 3

escription of Objectives	Objective			Composite Objective		
		Administration Time			Administration Time	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
umerousness						
writes 0-99	3	[illegible]	[illegible]			
represents 0-99	3	[illegible]	[illegible]	6	93.8	92.4
rdering, Place Value						
ordering 0-99	3	[illegible]	[illegible]			
notation 0-99	3	[illegible]	[illegible]	6	57.4	60.2
roblem-Solving (Set A)						
subt-simple separating	2	[illegible]	[illegible]			
add-part part whole	2	60.0	70.1			
subt-comparison	2	77.3	102.0			
11-15	3	70.6	97.0			
0-99	3	43.2	70.0	6	67.2	85.3
roblem-Solving (Set B)						
subt-join-addend	2	95.5	85.7			
add-simple joining	2	86.4	82.6			
subt-part part whole-addend	2	60.0	50.0			
11-15	3	100.0	93.9			
0-99	3	64.5	91.5	6	81.3	72.7

388

389

Table (Continued)

Description of Objectives	Objective			Composite Objecti		
		Administration Time			Administration Tim	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Sentence-Writing (Set A)						
subt-simple separating	2	95.5	95.2			
add-part part whole	2	100.0	100.0			
subt-comparison	2	70.0	68.2			
11-15	3	93.8	93.9			
0-99	3	84.4	81.8	6	89.1	87.9
Sentence-Writing (Set B)						
subt-join-addend	2	59.1	60.9			
add-simple joining	2	100.0	100.0			
subt-part part whole-addend	2	77.3	81.0			
11-15	3	78.1	78.8			
0-99	3	78.1	81.8	6	78.1	80.3
Sentence-Writing (Free Response)						
add-simple joining	2	90.9	100.0			
subt-simple separating	2	100.0	100.0			
subt-part part whole-addend	2	95.0	81.8			
add-part part whole	2	100.0	95.2			
subt-comparison	2	54.6	93.9			
subt-join-addend	2	72.7	66.7			
Set A (as above)	6	84.4	89.4			
Set B (as above)[1]	6	86.0	83.3			
11-15	6	89.1	86.4			
0-99	6	81.3	86.4	12	85.2	86.4

[1]Although the problem types correspond to Set B, these free response problems have the same wording etc. as the intervi

Table (Continued)

Description of Objectives	Objective			Composite Object	
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration T: A-1	A-2
Algorithms						
addition algorithm	3	50.0	43.7			
subtraction algorithm	3	43.8	39.4	6	46.9	66.7
Algorithms (Free Response) (Timed Test)						
2-digit addition algorithm	27	54.5	83.1			
3-digit addition algorithm	36	30.5	57.6			
3 addends	9	31.3	45.3	72	36.1	65.3
2-digit subtraction algorithm	27	41.3	56.4			
3-digit subtraction algorithm	45	16.5	18.8	72	25.8	25.4
Recall of Basic Facts (Speeded Test)						
add 0-20				36	87.5	90.2
subt 0-20				36	75.3	76.3

	Administration Time A-1	A-2
Form U N =	12	11
Form V N =	10	10
Form W N =	10	12

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:

Description of Objectives	Objective			Composite Objecti	
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration Ti A-1	A-2
Numerousness						
writes 0-99	3	15.4	100.0			
represents 0-99	3	12.1	100.0	6	95.2	100.0
Ordering, Place Value						
ordering 0-99	3	85.7	90.0			
notation 0-99	3	14.3	15.0	6	50.0	52.5
Problem-Solving (Set A)						
subt-simple separating	2	61.5	61.5			
add-part part whole	2	73.3	100.0			
subt-comparison	2	71.4	80.0			
11-15	3	81.0	95.0			
0-99	3	57.1	65.0	6	69.1	80.0
Problem-Solving (Set B)						
subt-join-addend	2	71.4	73.0			
add-simple joining	2	92.3	100.0			
subt-part part whole-addend	2	60.0	58.5			
11-15	3	90.5	95.0			
0-99	3	57.1	60.0	6	73.8	77.5

Table (Continued)

Description of Objectives	Objective			Composite Objecti	
		Administration Time			Administration Ti
	Number of Items	A-1	A-2	Number of Items	A-1 A-2
Sentence-Writing (Set A)					
subt-simple separating	2	100.0	92.3		
add-part part whole	2	76.9	100.0		
subt-comparison	2	80.0	83.3		
11-15	3	95.2	100.0		
0-99	3	76.2	85.0	6	85.7 92.5
Sentence-Writing (Set B)					
subt-join-addend	2	61.5	61.5		
add-simple joining	2	100.	100.0		
subt-part part whole-addend	2	78.6	80.0		
11-15	3	82.1	8.0		
0-99	3	76.2	80.0	6	81.0 80.0
Sentence-Writing (Free Response)					
add-simple joining	2	100.0	100.0		
subt-simple separating	2	100.0	71.4		
subt-part part whole-addend	2	80.0	75.0		
add-part part whole	2	100.0	100.0		
subt-comparison	2	53.9	61.5		
subt-join-addend	2	57.1	60.0		
Set A (as above)[1]	6	85.7	85.0		
Set B (as above)[1]	6	78.6	77.5		
11-15	6	85.7	80.0		
0-99	6	78.6	82.5	12	82.1 81.3

[1]Although the problem types correspond to Set B, these free response problems have the same wording etc. as the intervi items; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Class 1

Description of Objectives	Objective			Composite Object	
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration T A-1	A-2
Algorithms						
addition algorithm	3	57.1	100.0			
subtraction algorithm	3	42.9	65.0	6	50.0	82.5
Algorithms (Free Response) (Timed Test)						
2-digit addition algorithm	27	66.7	87.8			
3-digit addition algorithm	36	48.0	67.1			
3 addends	9	11.1	25.0	72	50.4	69.6
2-digit subtraction algorithm	27	36.5	42.2			
3-digit subtraction algorithm	45	18.1	18.0	72	25.0	27.1
Recall of Basic Facts (Speeded Test)						
add 0-20				36	87.7	91.7
subt 0-20				36	71.0	78.8

	Administration Time A-1	A-2
Form U N =	6	8
Form V N =	8	7
Form W N =	7	5

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:

Description of Objectives	Objective			Composite Objecti		
		Administration Time			Administration Ti	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Numerousness						
writes 0-99	3	70.7	92.9			
represents 0-99	3	92.3	90.9	6	84.6	12.9
Ordering, Place Value						
ordering 0-99	3	69.2	64.3			
notation 0-99	3	15.4	21.4	6	42.3	42.9
Problem-Solving (Set A)						
subt-simple separating	2	57.1	66.7			
add-part part whole	2	60.0	77.8			
subt-comparison	2	44.4	70.0			
11-15	3	53.9	85.1			
0-99	3	53.7	57.1	6	53.7	71.4
Problem-Solving (Set B)						
subt-join-addend	2	55.6	90.0			
add-simple joining	2	71.4	77.8			
subt-part part whole-addend	2	50.0	44.4			
11-15	3	76.7	78.6			
0-99	3	46.2	50.0	6	61.5	64.3

Table (Continued)

Description of Objectives	Objective			Composite Objecti		
		Administration Time			Administration Ti	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Sentence-Writing (Set A)						
subt-simple separating	2	88.9	90.0			
add-part part whole	2	85.7	88.9			
subt-comparison	2	40.0	33.3			
11-15	3	76.9	72.1			
0-99	3	61.5	50.0	6	69.2	71.4
Sentence-Writing (Set B)						
subt-join-addend	2	28.6	33.3			
add-simple joining	2	90.0	66.7			
subt-part part whole-addend	2	66.7	30.0			
11-15	3	69.2	35.1			
0-99	3	61.5	50.0	6	65.4	42.9
Sentence-Writing (Free Response)						
add-simple joining	2	100.0	58.9			
subt-simple separating	2	100.0	100.0			
subt-part part whole-addend	2	80.0	44.4			
add-part part whole	2	100.0	100.0			
subt-comparison	2	14.3	22.2			
subt-join-addend	2	33.3	0			
Set A (as above)[1]	6	76.9	75.0			
Set B (as above)[1]	6	69.2	42.9			
11-15	6	73.1	64.3			
0-99	6	73.1	58.6	12	73.1	58.9

[1]Although the problem types correspond to Set B, these free response problems have the same wording etc. as the intervi
items; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective			Composite Objective		
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration Time A-1	A-2
Algorithms						
addition algorithm	3	46.2	64.3			
subtraction algorithm	3	46.2	7.1	6	46.2	35.7
Algorithms (Free Response) (Timed Test)						
2-digit addition algorithm	27	36.8	61.5			
3-digit addition algorithm	36	16.7	28.6			
3 addends	9	0	4.8	72	22.1	40.2
2-digit subtraction algorithm	27	28.2	23.8			
3-digit subtraction algorithm	45	15.9	10.0	72	20.5	15.2
Recall of Basic Facts (Speeded Test)						
add 0-20				36	64.1	53.5
subt 0-20				36	55.8	51.8

	Administration Time A-1	A-2
Form U N =	2	5
Form V N =	6	5
Form W N =	4	4

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:

Description of Objectives	Objective			Composite Objecti		
		Administration Time			Administration Ti	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Numerousness						
writes 0-99	3	88.2	82.4			
represents 0-99	3	100.0	100.0	6	94.1	91.2
Ordering, Place Value						
ordering 0-99	3	88.2	94.1			
notation 0-99	3	11.8	17.7	6	50.0	55.9
Problem-Solving (Set A)						
subt-simple separating	2	63.6	58.3			
add-part part whole	2	63.6	90.9			
subt-comparison	2	66.7	100.0			
11-15	3	88.2	100.0			
0-99	3	41.2	64.7	6	64.7	82.4
Problem-Solving (Set B)						
subt-join-addend	2	100.0	81.8			
add-simple joining	2	70.9	75.0			
subt-part part whole-addend	2	54.6	45.5			
11-15	3	100.0	88.2			
0-99	3	64.7	47.1	6	82.4	67.7

Table (Continued)

Description of Objectives	Objective			Composite Objecti		
		Administration Time			Administration Ti	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Sentence-Writing (Set A)						
subt-simple separating	2	91.7	90.9			
add-part part whole	2	100.0	100.0			
subt-comparison	2	54.6	54.6			
11-15	3	94.1	58.2			
0-99	3	70.6	76.5	6	82.4	82.4
Sentence-Writing (Set B)						
subt-join-addend	2	36.4	41.7			
add-simple joining	2	100.0	100.0			
subt-part part whole-addend	2	58.3	72.7			
11-15	3	58.8	70.6			
0-99	3	70.6	70.6	6	64.7	70.6
Sentence-Writing (Free Response)						
add-simple joining	2	90.9	100.0			
subt-simple separating	2	100.0	100.0			
subt-part part whole-addend	2	90.9	72.7			
add-part part whole	2	100.0	90.9			
subt-comparison	2	18.2	50.0			
subt-join-addend	2	50.0	63.6			
Set A (as above)[1]	6	73.5	79.4			
Set B (as above)[1]	6	16.5	79.4			
11-15	6	79.4	79.4			
0-99	6	70.6	79.4	12	75.0	79.4

[1]Although the problem types correspond to Set B, these free response problems have the same wording etc. as the intervi items; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective			Composite Object		
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration T A-1	A-2
Algorithms						
addition algorithm	3	41.2	88.2			
subtraction algorithm	3	35.3	29.4	6	38.2	58.8
Algorithms (Free Response) (Timed Test)						
2-digit addition algorithm	27	45.8	83.1			
3-digit addition algorithm	36	22.1	50.0			
3 addends	9	0	21.6	72	28.2	59.1
2-digit subtraction algorithm	27	34.6	28.8			
3-digit subtraction algorithm	45	11.0	16.7	72	19.9	20.6
Recall of Basic Facts (Speeded Test)						
add 0-20				36	83.3	84.8
subt 0-20				36	69.1	70.1

	Administration Time A-1	A-2
Form U N =	6	6
Form V N =	6	5
Form W N =	5	6

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:

Case 4

Description of Objectives	Objective			Composite Objective		
		Administration Time			Administration Time	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Numerousness						
writes 0-99	3	100.0	66.7			
represents 0-99	3	71.4	71.8	6	85.7	72.2
Ordering, Place Value						
ordering 0-99	3	100.0	88.9			
notation 0-99	3	14.3	33.3	6	57.1	61.1
Problem-Solving (Set A)						
subt-simple separating	2	50.0	33.3			
add-part part whole	2	25.0	66.7			
subt-comparison	2	50.0	50.0			
11-15	3	42.9	66.7			
0-99	3	42.9	33.3	6	42.9	50.0
Problem-Solving (Set B)						
subt-join-addend	2	75.0	66.7			
add-simple joining	2	66.7	88.3			
subt-part part whole-addend	2	25.0	66.7			
11-15	3	85.7	77.8			
0-99	3	28.6	66.7	6	57.1	72.2

Table (Continued)

Description of Objectives	Objective			Composite Objecti		
		Administration Time			Administration Ti	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Sentence-Writing (Set A)						
subt-simple separating	2	50.0	83.3			
add-part part whole	2	83.3	100.0			
subt-comparison	2	25.0	0			
11-15	3	71.4	55.6			
0-99	3	42.9	66.7	6	57.1	61.1
Sentence-Writing (Set B)						
subt-join-addend	2	33.3	0			
add-simple joining	2	25.0	66.7			
subt-part part whole-addend	2	0	50.0			
11-15	3	28.6	33.3			
0-99	3	14.3	44.4	6	21.4	38.9
Sentence-Writing (Free Response)						
add-simple joining	2	83.3	100.0			
subt-simple separating	2	75.0	66.7			
subt-part part whole-addend	2	25.0	33.3			
add-part part whole	2	100.0	100.0			
subt-comparison	2	0	0			
subt-join-addend	2	0	50.0			
Set A (as above)	6	50.0	55.6			
Set B (as above)[1]	6	42.9	61.1			
11-15	6	50.0	61.1			
0-99	6	42.9	55.6	12	46.4	58.3

[1]Although the problem types correspond to Set B, these free response problems have the same wording etc. as the intervie

Table (Continued)

Description of Objectives	Objective			Composite Object		
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration T A-1	A-2
Algorithms						
addition algorithm	3					
subtraction algorithm	3			6		
Algorithms (Free Response) (Timed Test)						
2-digit addition algorithm	27		40.7			
3-digit addition algorithm	36	13.1	13.7			
3 addends	9	0	0	72	14.3	22.2
2-digit subtraction algorithm	27	17.5	17.3			
3-digit subtraction algorithm	45	7.6	5.2	72		9.7
Recall of Basic Facts (Speeded Test)						
add 0-20				36	46.4	50.9
subt 0-20				36		40.7

	Administration Time A-1	A-2
Form U N =		3
Form V N =		3
Form W N =		

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:

Description of Objectives	Objective			Composite Objectiv	
		Administration Time			Administration Tim
	Number of Items	A-1	A-2	Number of Items	A-1 A-2
Numerousness					
writes 0-99	3	100.0	100.0		
represents 0-99	3	86.7	87.5	6	93.3 93.8
Ordering, Place Value					
ordering 0-99	3	100.0	93.8		
notation 0-99	3	40.0	56.3	6	70.0 75.0
Problem-Solving (Set A)					
subt-simple separating	2	63.6	63.6		
add-part part whole	2	53.6	90.1		
subt-comparison	2	90.0	100.0		
11-15	3	93.3	93.8		
0-99	3	46.7	75.0	6	70.0 84.4
Problem-Solving (Set B)					
subt-join-addend	2	90.0	90.0		
add-simple joining	2	81.8	90.9		
subt-part part whole-addend	2	66.7	54.6		
11-15	3	100.0	100.0		
0-99	3	60.0	56.3	6	80.0 78.1

Table (Continued)

Description of Objectives	Objective			Composite Objectiv	
		Administration Time			Administration Tim
	Number of Items	A-1	A-2	Number of Items	A-1 A-2
Sentence-Writing (Set A)					
subt-simple separating	2	100.0	100.0		
add-part part whole	2	100.0	100.0		
subt-comparison	2	88.9	81.8		
11-15	3	93.3	100.0		
0-99	3	100.0	87.5	6	96.7 93.8
Sentence-Writing (Set B)					
subt-join-addend	2	81.8	81.8		
add-simple joining	2	100.0	100.0		
subt-part part whole-addend	2	100.0	90.9		
11-15	3	100.0	87.5		
0-99	3	86.7	73.8	6	93.2 90.6
Sentence-Writing (Free Response)					
add-simple joining	2	90.9	100.0		
subt-simple separating	2	100.0	100.0		
subt-part part whole-addend	2	100.0	90.9		
add-part part whole	2	100.0	100.0		
subt-comparison	2	90.9	100.0		
subt-join-addend	2	100.0	70.0		
Set A (as above)[1]	6	96.7	100.0		
Set B (as above)[1]	6	96.7	87.5		
11-15	6	100.0	93.8		
0-99	6	93.3	93.8	12	96.7 93.8

[1]Although the problem types correspond to Set B, these free response problems have the same wording etc. as the intervie items; i.e., the Sentence-Wfiting Set B items above have alternative wording, number order, etc.

Table (Continued)

Class 5

Description of Objectives	Objective			Composite Object	
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration T A-1	A-2
Algorithms		60.0	100.0			
addition algorithm	3	53.3	50.0	6	56.7	75.0
subtraction algorithm	3					
Algorithms (Free Response) (Timed Test)						
2-digit addition algorithm	27	64.4	94.4			
3-digit addition algorithm	36	45.0	65.6			
3 addends	9	6.7	29.2	72	45.0	71.9
2-digit subtraction algorithm	27	48.9	44.4			
3-digit subtraction algorithm	45	22.7	22.1	72	32.5	30.5
Recall of Basic Facts (Speeded Test)						
add 0-20				36	92.2	95.8
subt 0-20				36	82.2	82.8

	Administration Time A-1	A-2
Form U N =	6	5
Form V N =	4	5
Form W N =	5	6

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:

Description of Objectives	Objective			Composite Objective		
		Administration Time			Administration Time	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Numerousness						
writes 0-99	3	66.7	71.0			
represents 0-99	3	76.2	100.0	6	71.4	89.5
Ordering, Place Value						
ordering 0-99	3	95.2	68.4			
notation 0-99	3	14.3	21.1	6	54.8	44.7
Problem-Solving (Set A)						
subt-simple separating	2	57.1	53.9			
add-part part whole	2	42.9	91.7			
subt-comparison	2	50.0	53.9			
11-15	3	52.4	54.2			
0-99	3	47.6	47.4	6	50.0	65.8
Problem-Solving (Set B)						
subt-join-addend	2	71.4	92.3			
add-simple joining	2	85.7	92.3			
subt-part part whole-addend	2	[illegible]	34.9			
11-15	3	81.0	89.5			
0-99	3	52.4	57.9	6	66.7	73.7

Table (Continued) Class 6

Description of Objectives	Objective			Composite Objecti		
		Administration Time			Administration Ti	
	Number of Items	A-1	A-2	Number of Items	A-1	A-2
Sentence-Writing (Set A)						
subt-simple separating	2	100.0	100.0			
add-part part whole	2	71.4	84.6			
subt-comparison	2	42.9	41.7			
11-15	3	85.7	84.2			
0-99	3	57.1	68.4	6	71.4	76.3
Sentence-Writing (Set B)						
subt-join-addend	2	28.6	23.1			
add-simple joining	2	85.7	100.0			
subt-part part whole-addend	2	92.9	53.9			
11-15	3	66.7	47.4			
0-99	3	71.4	68.4	6	69.1	57.9
Sentence-Writing (Free Response)						
add-simple joining	2	100.0	92.3			
subt-simple separating	2	100.0	83.3			
subt-part part whole-addend	2	71.4	58.3			
add-part part whole	2	92.9	92.3			
subt-comparison	2	50.0	38.5			
subt-join-addend	2	50.0	38.5			
Set A (as above)[1]	6	81.0	71.1			
Set B (as above)[1]	6	73.8	63.2			
11-15	6	81.0	73.7			
0-99	6	73.8	60.5	12	77.4	67.1

257

[1]Although the problem types correspond to Set B, these free response problems have the same wording etc. as the intervi items; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

escription of Objectives	Objective			Composite Objecti		
	Number of Items	Administration Time A-1	A-2	Number of Items	Administration Ti A-1	A-2
Algorithms						
addition algorithm	3	47.6	84.2			
subtraction algorithm	3	42.7	47.4	6	45.2	65.8
Algorithms (Free Response) (Timed Test)						
2-digit addition algorithm	27	46.6	83.0			
3-digit addition algorithm	36	39.3	64.4			
3 addends	9	1.6	19.2	72	27.5	66.0
2-digit subtraction algorithm	27	29.1	26.9			
3-digit subtraction algorithm	45	14.3	16.8	72	19.8	20.6
Recall of Basic Facts (Speeded Test)						
add 0-20				36	80.6	15.9
subt 0-20				36	54.8	102.7

	Administration Time A-1	A-2
Form U N =	7	7
Form V N =	7	6
Form W N =	7	6

ASSOCIATED FACULTY

Bradford B. Brown
Assistant Professor
Educational Psychology

Glen G. Cain
Professor
Economics

Thomas P. Carpenter
Professor
Curriculum and Instruction

Robin S. Chapman
Professor
Communicative Disorders

William H. Clune
Professor
Law

W. Patrick Dickson
Assistant Professor
Child and Family Studies

William Epstein
Professor
Psychology

Herbert A. Exum
Assistant Professor
Counseling and Guidance

Elizabeth H. Fennema
Professor
Curriculum and Instruction

Lloyd E. Frohreich
Professor
Educational Administration

Marvin J. Fruth
Professor
Educational Administration

Arthur M. Glenberg
Associate Professor
Psychology

Helen Goodluck
Assistant Professor
English and Linguistics

Maureen T. Hallinan
Professor
Sociology

J. R. Hollingsworth
Professor
History

Dale D. Johnson
Professor
Curriculum and Instruction

Carl F. Kaestle
Professor
Educational Policy Studies

Herbert J. Klausmeier
V. A. C. Henmon Professor
Educational Psychology

Joel R. Levin
Professor
Educational Psychology

Cora B. Marrett
Professor
Sociology and Afro-American Studies

Douglas W. Maynard
Assistant Professor
Sociology

Jon F. Miller
Professor
Communicative Disorders

Fred M. Newmann
Professor
Curriculum and Instruction

Michael R. Olneck
Associate Professor
Educational Policy Studies

Penelope L. Peterson
Associate Professor
Educational Psychology

Gary G. Price
Assistant Professor
Curriculum and Instruction

W. Charles Read
Professor
English and Linguistics

Thomas A. Romberg
Professor
Curriculum and Instruction

Richard A. Rossmiller
Professor
Educational Administration

Richard Ruiz
Assistant Professor
Educational Policy Studies

Peter A. Schreiber
Associate Professor
English and Linguistics

Barbara J. Shade
Associate Professor
Educational Psychology,
UW-Parkside

Marshall S. Smith
Center Director and Professor
Educational Policy Studies
and Educational Psychology

Aage B. Sorensen
Professor
Sociology

B. Robert Tabachnick
Professor
Curriculum and Instruction
and Educational Policy
Studies

Karl E. Taeuber
Professor
Sociology

Bruce A. Wallin
Assistant Professor
Political Science

Gary G. Wehlage
Professor
Curriculum and Instruction

Alex Cherry Wilkinson
Assistant Professor
Psychology

Louise Cherry Wilkinson
Associate Professor
Educational Psychology

Steven R. Yussen
Professor
Educational Psychology